COAL AGE

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There is a man at each works of every coal-mining concern who at one time or another sees every one and is personally acquainted with more of the men than the foreman or superintendent. He is the timekeeper.

A man like this, who keeps time, issues store checks, pays off, etc., is the point of contact between the company and the men. In a large sense, he is the personal representative of the company. He transmits the current of ill or good will that permeates the entire organization, and this depends simply on whether he treats the men curtly or courteously. It is through him that rightly, or not, the men acquire their ideas of the company's feelings towards them.

Let us draw a few comparisons from experience and see what part a timekeeper plays in the affairs of a large coal corporation.

A miner goes to the office where a curt timekeeper is in charge. The detail of his yardage earnings is not shown on his pay statement. The amount does not tally with his figures. The timekeeper pays no attention to the presence of the man whom he must know wants information of some kind or he would not be there. The miner waits patiently for a while and finally asks his question.

"All I know about it is what the engineers turned in," says the timekeeper.

"Don't worry me with *your* troubles."

The man goes away with a grouch and it takes him two or three days to see the engineer and get the detail of his yardage—the very data the timekeeper had on his file.

Did the company want that miner treated this way? Did they gain a friend?

At another operation where a courteous timekeeper is employed, one of the men comes to the office. The timekeeper is busy, but not too busy to smile and say "Hello, Jack, what's worryin' you?" The way is paved for the question.

"Sure I can tell you all about it," says the timekeeper and he does it to the entire satisfaction of the man. Did that miner feel friendly or unfriendly toward the concern? We'll leave it to you to say.

This time it happens at a Southern coal mine. Most of the labor is colored and the timekeeper, unfortunately for his company, thinks every negro is a "Nigger." One appears at the window.

"What's your trouble, Nigger?"

"No trouble, Cap'en, only I'se cut fo' de' sto' and yo' know I doan' do no tradin' dere."

"Ain't your name Henry Jones?"

"Yes, suh, but dere's anudder———"

"Well you're cut for the store all right."

"But, Cap'en, I ain't de right man, dere's anudder—"

"Oh, go on and talk to the storekeeper about it."

It took the negro just long enough to do that to keep him out of the mines that day and it was finally found that the stop list showed the charge against Henry Jones, rock-helper, instead of Henry Jones, miner; where the timekeeper entered it.

At another Southern mine where the right sort of timekeeper was in charge the negro was treated differently—like this:

"Hello, Henry, how's your watermelons this year?"

"Dey's sho' good, Cap'en, I'se gwine bring you—"

"What do you want, Henry?"

Henry tells him and in a moment the timekeeper looks over his list.

"You're a rock-helper, ain't you, Henry?"

"No, suh, I'se diggin' in the 14th West."

"Well it's on me, Henry, I cut you wrong this time. Hurry up and catch the man trip and come by tonight. I'll have it all fixed for you."

"Yas, suh! Thank you, suh!"

Henry cut more coal than usual that day simply because he was accorded the kind of treatment the Southern negro likes to have at the hands of his white friends.

Cases like this might be multiplied, but why do it? You have seen and heard everywhere just lots of such dialogues in your own experience. It will be enough to remember that just as sure as the payroll records the earnings of your men, just so sure do the character, temper and attitude of your timekeeper reflect—so far as the men can see—the attitude and spirit of the company. If the curt timekeeper is allowed to remain in charge, can you blame the men for feeling that the company likes his ways and wants him there?

Mine managers and superintendents should not consider that all their time and energy must be devoted to getting out coal, or to welfare work, which latter consists alone in building fences, schools, churches and playgrounds, and then saying, look what we've done for our people! Welfare work without a real moving human spirit is wasted energy.

You can have either a curt or a courteous timekeeper. It's up to you.

Ideas and Suggestions

[*Everyone who has followed the work of* COAL AGE *must be familiar with the paper's policy. We are primarily an engineering weekly. The bulk of matter published is technical in nature. However, there is no doubt in our mind that we are living in an age when present action must no longer be governed by past traditions. We feel deep reverence for all the great men and noble deeds that have set the industries of America on such a firm foundation, but ideas and beliefs must fit the times.*

We are coming to a democracy in commerce and industry just as we have in civil government. As a consequence, the mine engineer, superintendent and manager today have problems to solve, other than those mathematical in nature. No employer can be successful who does not feel a common sympathy for the men he directs. That is why COAL AGE *devotes so much attention to questions of an ethical and sociological nature. We would be doing only half our duty and fulfilling a small purpose if we were to deal with ventilation, pumping and the engineering principles of mining, to the exclusion of all our vital labor questions.*

It is for this reason we urge our readers to contribute articles along the lines of those published here and on the foreword page preceding. Do you know that we will pay as high as $20 for a suitable foreword? Do you know that some of our contributors net more than $500 a year for the writing they do in spare minutes. Perhaps you are fitted for such work. It isn't always the artistic penman or the fellow with a wonderful vocabulary who has a real knowledge of mining.

What we want are worth-while facts, not elegance of expression. We publish COAL AGE *for plain people who are best pleased with plain talk. We invite you to write for us, and we assure you of careful and considerate attention.*—EDITOR.]

The Value of Co-operation and Encouragement on the Part of a Man's Wife or Family

BY PENNSYLVANIA SUPERINTENDENT

Not long ago, a first-grade mine foreman in the bituminous region of Pennsylvania remarked, "I am free to confess that I owe a good deal of my advancement to my wife. If it had not been for her, I probably never would have studied and passed the examination for fireboss, nor would I have had the ambition to go on studying and trying to improve myself so that I could pass the examination for mine foreman.

"Now, mind you, my wife never had much of an education herself. She had to leave school while quite young and go to work. However, she seemed to have the ability to learn, and so when I began to study, she studied with me and often by her encouragement, kept me from giving up and resting content to drive a motor."

Near the same town in which this mine foreman lives, there is a young technical graduate, recently married, who is starting in at the bottom to work his way up in coal mining. His wife, also a college graduate, takes the keenest interest in the mining journal he receives, and usually she reads it each week. Her questions and requests for explanations of some of the articles she does not understand, often cause her husband to investigate something helpful and interesting that he has overlooked in reading the paper, and frequently to brush up on some technical matter that he finds he does not know quite as much about as he thought he did.

Considering the wide difference in educational opportunities of the persons concerned, these two instances taken together, show the advantages of a man's making the work by which he earns his daily bread of some interest in his home. Even in those cases where a man must study alone at home, a sympathetic understanding by the members of his family of the value of study is of great assistance. Moreover, if a person has the slightest desire to advance himself, a little encouragement will go a long way to fix his determination.

The value of study of any character is entirely dependent upon its being earnest, kept up at regular intervals and for definite periods of time. This is much more easily accomplished when a man has the coöperation, or at least the interest of his wife. The value of this coöperation has been demonstrated in many cases. Isn't it worth trying in a great many more?

Co-operation of Mining Factors

BY I. C. PARFITT*

The success of the coöperation of mine officials and employees in the solution of industrial problems by the submission and discussion of theories, facts and practical suggestions, will depend upon the amicable relations of the different elements and the degree of personal interest with which each is actuated.

I have always maintained and advocated that the more friendly the personal relations between the workmen and the officials, the greater will be the efficiency of the productive organization, but to establish such relations there must be mutual concessions.

THE COAL MINER HAS BEEN REGARDED AS AN INFERIOR BEING

The coal miner, from the establishment of the industry until the present time, has been regarded by his contemporaries as a being, mentally and morally, of an inferior species of humanity. That such a conception is erroneous, the true standard of humanity will verify, and its authenticity cannot be strengthened by any appeal to the fallacious theory of caste.

The prevalence of such an opinion arose from the social isolation necessitated by the nature of his labor and

*Jerome, Penn.

the retrogressive results of compulsory associations of a class whose standard of superiority was the measure of brawn and not brain.

Intellectual growth, except within very prescribed limits, was impossible to a class of people so situated as to be excluded from contact with culture and refinement, except what was intuitive, and who had the fact impressed upon them, in no equivocal terms, that the attainment of such was impossible because nature had not endowed them with the faculties required for such acquisition, but had designed them to be the vassals of a superior caste. It was urged upon them that to aspire after a higher mental and moral life, would be a violation of the dispensations of an all-wise providence.

While such conditions never existed in the United States in the same degree as they did in the countries of the old world, because the practical democratic principles of theoretic equality will not recognize the existence of any such distinction, yet they practically exist in such a degree as to form the chief barrier to the coöperation of employer and employee on the basis of an equality of rights and a mutuality of interests.

That this statement is not based upon any hypothetical or theoretical assumption, may be readily verified by any one who will take the trouble to investigate the ulterior motives that have actuated the opposing forces in our great industrial conflicts; the one has been dominated by the nonrecognition of rights; the other by the nonrecognition of superiority.

These motives can be made nonantagonistic only by a demonstration of the fact that the actual and vital interests of the two elements are mutual. The suggestion under consideration is a step in the right direction for the ultimate establishment of such a desirable sentiment.

The Motive of the Average Employee and Average Employer Is Purely Selfish

The ordinary worker does not recognize the pursuit of his occupation as a means to a universal end, but as a task that it is incumbent upon him to perform in order to maintain his physical well-being. His interest, so far as he has any, is limited to the compensation he receives for his services. He does not and cannot regard it as a means by which he may be enabled to cultivate his talents or display his genius, because he does not recognize the fact that his interests are the same as those of his employer. His motive is purely selfish. Labor performed under the incentive of such a motive, never has nor ever will, conduce to individual or collective happiness and industrial welfare.

To be a potent beneficial factor in coöperation, he must concede the same skill, perseverance, industry and honesty of purpose to his work as he would if it were his own individual undertaking.

The average employer, likewise, does not regard the business he has established as a means to an honorable and praiseworthy end, but simply as a medium through which he can utilize the labor (capital) of others for his personal aggrandizement. Primarily, he is actuated by the desire to accumulate wealth, and thereby come into the possession of power. His motive is also purely selfish.

He cannot be actuated by any other because he does not recognize the fact that his investment is only one-half, and the less substantial half of the combination. He fails to perceive that the interest of labor is equally as important to the existence and continuance of the industry as that of capital and that it should receive the same recognition. Such a business is a partnership of antagonistic interests, if I may be permitted the use of such an expression, and exists only by the operation of a mutually selfish principle.

The employer must acknowledge and concede the equality and rights of the means he employs.

Benefits of a Mutual Agreement

Leaving the ethical aspects of the subject and considering only the benefits that may accrue, from a strictly business standpoint, it is evident that the interests of both factors, though mutually selfish, may be materially benefited by a mutual discussion and agreement upon plans whose execution will result in increased stability of operation and financial returns. The employer will be benefited in an increased scope for the employment of his managerial and executive abilities by securing a more thorough knowledge of the technical and practical principles involved in the methods of operation.

He also obtains a more intimate knowledge of the general characteristics, mental caliber and executive abilities of his employees. That such knowledge is of inestimable value to an employer in supplying him with positive data as to the possession of the requisite abilities of those to whom the management of the operation must be entrusted, and in enabling him to select the most suitable, cannot, I think, be questioned.

The recognition and appreciation of the employee's abilities, even if it be only a verbal acknowledgement, tends to establish and nourish confidence and self-esteem and raises the recipient in his own estimation, making him a more valuable factor in the aggregation. Self-esteem or self-confidence is an absolutely essential element to success. To properly cultivate it is to confer a benefit; to disparage or ignore it is an offense.

In addition to this stimulus, the employee learns to respect his employer since he has condescended to meet him upon a basis of business equality, and there is no better way of breaking down the barriers of distinction and establishing a mutuality of interests than for man to meet man as a peer.

It is a natural law of our being to render more valuable service to one whom we respect than to one whom we fear.

Suggested Precautions

Don't allow men to ride electric locomotives.

Don't fail to protect the trolley wires at cross-overs and partings.

Don't fail to have wires promptly repaired after roof falls.

Don't work on live apparatus if it is possible to cut off the current.

Don't send an inexperienced man to work on or about live apparatus of any kind.

Don't rely upon gloves for protection, unless they are perfectly dry, free from holes, and without metal parts.

Don't handle wires carelessly, just because they are insulated.

Don't travel in the same entry with the trolley wire if you can avoid doing so.

Don't get your explosives near electric wires or in cars near the locomotive.

Don't allow packages of explosives to come in contact with the metal parts of cars.

Don't fail to report when you find that electric wires are down.

Don't install temporary lights; leave that work to the electrician.

A Visit to Altofts Colliery, England

By Samuel Dean*

SYNOPSIS—Altofts is the mine operated by W. E. Garforth. He has made several improvements, such as breaking away from the stepped longwall face, installing disk undercutters and conveyors 260 ft. long. His loaders average 9 tons per day. All the coal is cut in the shale; shale dust is sprinkled everywhere. Garforth believes that American room workings can be made almost explosion-proof.

It is worth while going a long way to visit Altofts colliery. It is here that W. E., now Sir William, Garforth, has blazed the trail that so many coal-mining men have followed. Many years ago the barriers of prejudice were broken down, longwall faces were crooked and worked by what is known as the step system, as shown below.

He made them straight and the coal was undercut with

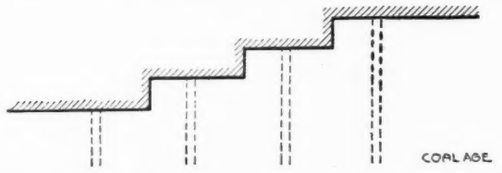


Fig. 1. This Method of Stepping Longwall Is Abandoned at Altofts

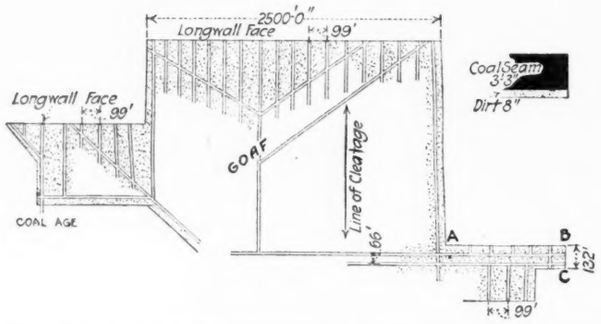


Fig. 2. Garforth's Method of Opening Up a Longwall Face

disk machines. Eminent mining engineers predicted failure, and said that the roof could not be held at the face, and now that success has been secured the roof is declared, in explanation, to be very favorable at Altofts.

Mr. Garforth had his own breathing apparatus (the WEG) patented and manufactured at a time when there were few such appliances in existence. He was one of the first to install a coal-washing plant. He designed and patented his own coal-cutting machines. Coal-face conveyors are used with great success in the thin seams he is working.

And what he has done in the way of preventing explosions and fires in mines is, of course, well known. He can look back upon a career of wonderful success, both scientific and commercial, and on account of his talents and modest disposition, and willingness to give others the benefit of his valuable experiences, he is held in high esteem by everyone who has met him.

*Delagua, Colo.

How Longwall Is Handled at Altofts

Fig. 2 shows the method of working a seam of coal 3 ft. 3 in. thick. The seam lies practically level, and wide bords or rooms, as on the right of the figure, 132 ft. wide, are driven out on the face of the coal with two gateways, set at 66-ft. centers. The space between ribs, excluding the gateways, is packed as tight as possible and there is never any trouble at the face. On the right and left of the bords longwall faces are started. From *A* to *B* shows one of these just opening. It is customary to pack tightly until the first weight has subsided, then spaces can be allowed between the goaf packs. The faces are worked on the butts because more lump coal is produced than when they are driven on the "faces" or parallel with the lines of cleavage. Compressed-air disk machines undercut to a depth of 5 ft. 6 in. in the

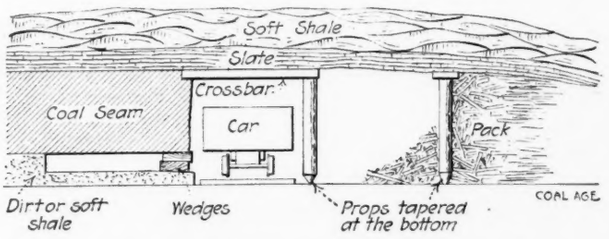


Fig. 3. Altofts Method of Protecting a Longwall Face

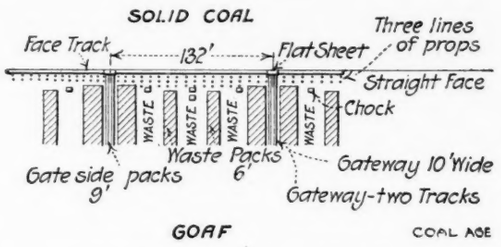


Fig. 4. Straight Longwall Faces at Altofts, Cut by Machinery

8 in. of dirt, and as a consequence there is no "bug dust" and the faces are automatically shale-dusted.

The Unstepped Longwall Face

Figs. 3 and 4 show the method of supporting a machine-cut face in a seam 4 ft. thick at a depth of 960 ft. As stated, the face is perfectly straight, and the timbering is maintained in straight lines. A few chocks of square timber are built, but these, with the props, are all withdrawn as the face advances. The packs are kept up as near the face as possible.

In 1882, Mr. Garforth made the following statement:

> **The straight line of face affords the best line of fracture, and by allowing the subsidence of the superincumbent weight to be regular and to fall on the goaf thus taking the pressure from the coal face, working places are seldom stopped by weighting in, and there is less liability to sudden outbursts, as the pent-up gas may be liberated in small quantities and regularly dealt with. ("Trans.," Mid. Inst., 1882, Vol. VIII, page 36.)**

And after 32 years his opinion is unchanged.

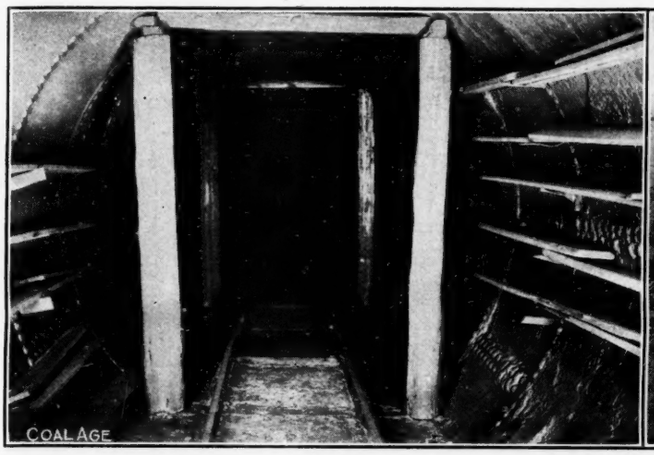


FIG. 5. INTERIOR OF EXPERIMENTAL TUBE AT ALTOFTS, SHOWING SHELVES

FIG. 6. DESTRUCTION OF ALTOFTS TUBE BY A COAL-DUST EXPLOSION

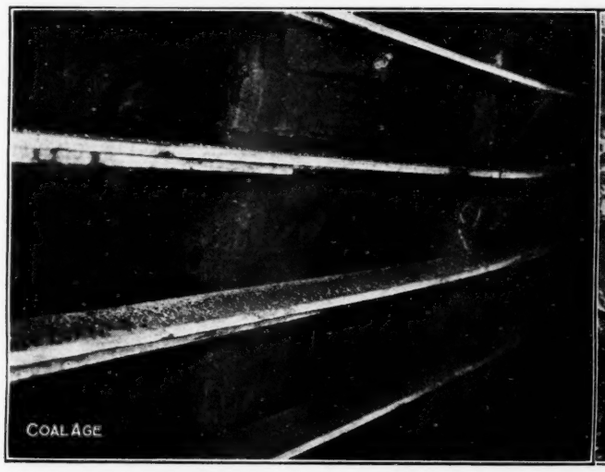


FIG. 7. SHALE-DUST SHELVING LINING THE SIDES OF A ROADWAY AT ALTOFTS COLLIERY

FIG. 8. SHOWS HOW SHALE DUST RESTS ON PROJECTIONS ON THE RIBS OF THE HEADINGS

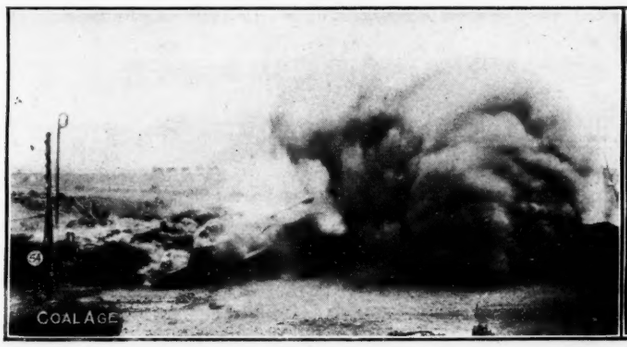


FIG. 9. A COAL-DUST EXPLOSION AT THE MOUTH OF THE ALTOFTS TUBE

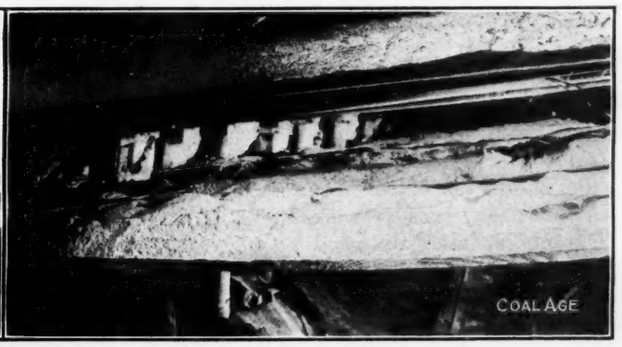


FIG. 10. SHALE-DUST SHELVES SPANNING THE TRACKS IN THE COLLIERY

WORKING ON THE BUTTS GIVES BETTER COAL AT ALTOFTS

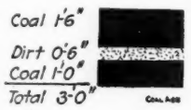
Further, by working his seams plumb on the end or "butts," or at right angles with the lines of cleatage, he secures the maximum amount of lump coal, so much so that there is a difference of 25c. a ton gained in the selling price over coal worked on the "face." He believes in an undercut running as deep as from 5 to 7 ft.

His miners have loaded machine-cut coal into mine cars, in these thin seams, for as low as 25c. a ton and have obtained higher wages than when working by hand at a much higher tonnage rate. The seams at Altofts vary from a little over 2 to 4 ft. in thickness. It is important in undercutting to remove the coal always to the same depth and not allow the machine to run in and out.

Instances could be quoted where a particular machine has given excellent results in one seam, while the same form of undercutter has caused inconvenience and loss in another mine, until a special machine has been adopted. The height of the undercutting, say in dirt, must be 5 in. or more, so that when the roof sinks the clearance is sufficient to prevent the coal from being wedged or crushed. Sir William favors the use of compressed air underground, but believes there are many mines which can be worked safely and with advantage by electricity. Since he introduced machines with a deep undercut, the use of explosives has been greatly reduced and in some cases abolished.

Why Longwall Is Advocated

He claims the following advantages for machine-cut straight-face longwall mining over the room-and-pillar methods: (1) Fewer men are required at the coal face, owing to the output per man being greater; (2) increased and more regular output per man; (3) less arduous labor by which the safety of the men is increased; (4) better quality of coal; (5) greater tonnage from a smaller area of coal field; (6) saving in timber; (7) reduced cost of production; (8) minimum danger to the overlying seams and surface property by a more regular settlement of the intervening strata, etc. A seam of the section adjacent is being worked with machines and face conveyors.



The machine cuts in the dirt, and the bottom foot of coal has to be shot up. Light charges are all that are necessary, only 2 oz. of permissible powder per 4-ft. hole. The gateways are at 270-ft. centers, the conveyors being about 260 ft. long. The miners or loaders break up the coal, load it on the conveyor, timber the face and remove any rock that may fall for 25c. per ton, and average 9 tons per man. The total output at Altofts is 3000 tons per day.

Coal-Dust Dangers

Sir William Garforth has taken great interest in the subject of the danger of coal dust for nearly 30 years. When giving evidence before the British Coal Dust Commission in 1891, he advised the use of shale dust for the prevention of coal-dust explosions.

Seventeen years later, in 1908, he was asked by the Coal Owners' Association to construct an experimental gallery, and the outcome was the famous Altofts tube, where so many tests were made proving the efficacy of incombustible dust. He based his original opinion on the teaching of nature. When leading the first exploring parties after the disaster in the Silkstone pit in 1886, he noticed great destruction in the haulage ways where there was coal dust, yet where the explosion had traveled roadways which contained quantities of shale dust formed by the feet of men and horses, there was no evidence of damage perceptible.

In some of the traveling ways at Altofts, the shale dust has been lying thickly on the floors for years, and has been raised in clouds daily by the men and horses going in and coming out, yet no complaints have been heard about lung troubles, and some of the old timers must have breathed a lot of this dust every day for many years.

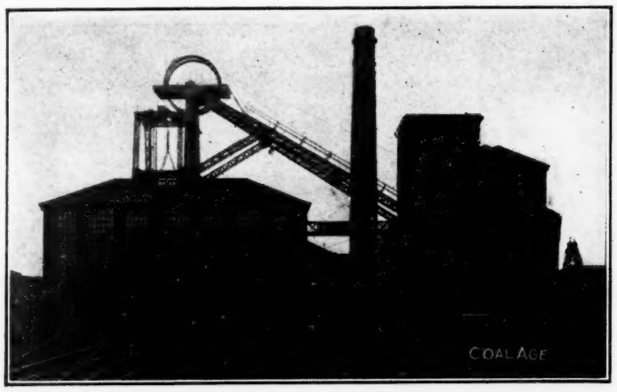


Fig. 11. One of the Shafts at Altofts Colliery

For over twenty years coal-cutting machines have been cutting in shale bands, and the exhaust from the engines and brisk air current has sent this dust along the faces, but it has never caused lung troubles and no complaints have been heard.

Tuberculosis Not Caused by Shale Dust

Occasionally scare heads appear in the mining journals pointing out the dreadful results of miner's consumption on the Rand in South Africa, caused by the inhalation of dust. It is the hard flinty material which causes the trouble, and this subject has been well studied and investigated by the eminent physiologist, J. S. Haldane, who said in 1910 that the dust used at Altofts for stopping coal-dust explosions is from soft shale and is certainly not of such a nature as to cause any anxiety as to the dangers of inhaling it, particularly as the amount inhaled must be small.

During the last six years, hundreds of tons of shale dust have been scattered along the haulage ways, traveling ways and returns at Altofts, but as yet it has not caused lung troubles. The only complaints heard have been from the boys who have done the shale dusting; after six months or a year they have asked for a change, and this could only be expected, as shale-dusting day by day may not be a delightful occupation, no more than is

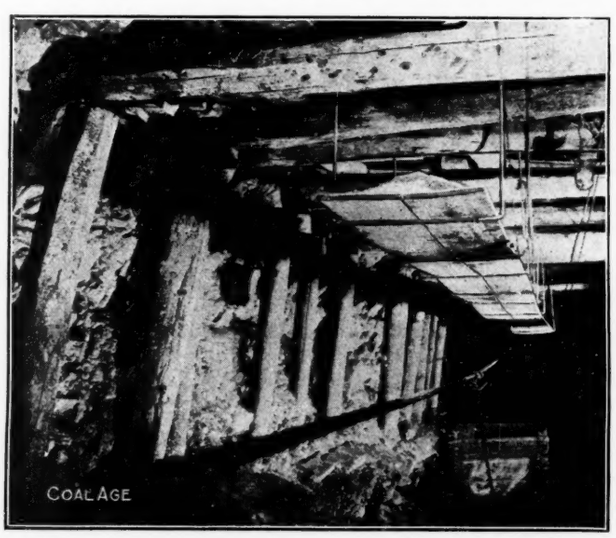


Fig. 12. Large Quantities of Shale Are Placed on Shelves Hanging from the Roof of the Roadway

sprinkling with a hose in the main intake in the depth of winter.

Excess of Shale Dust

The rule at Altofts is to put shale dust wherever there is coal dust, and in all parts of the workings which I visited there was from two to ten times as much powdered shale as powdered coal. There are many dust-tight steel cars without end doors in use and the coal is not loaded above the top of the car. Before a roadway is treated with shale dust, it is thoroughly cleaned and as much as possible of the coal dust is removed.

I questioned Sir William Garforth as to the possibility of successful stone-dusting under unfavorable conditions. He made his reply and asked for the opinions of his general manager, Mr. Lloyd, and his manager, Mr. Harrison. I give the statement and query as I presented it and a summary of the solution as supplied.

Fig. 13 shows part of a typical room-and-pillar mine, and I made the difficulties as great as possible, stipulating that machines were employed at the face of each

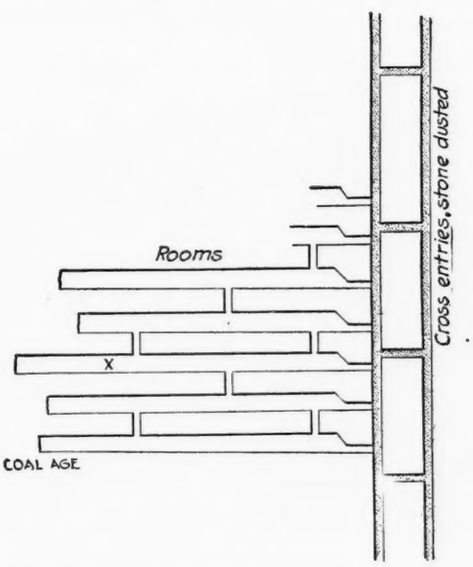


Fig. 13. Typical American Conditions in a Stone-Dusted Mine

room, that these cut in the coal, and that a large quantity of dust was raised which floated about and settled on the floor and projections. I assumed that the cross-entries were shale dusted, and said that there was little difficulty in keeping them in a safe condition, and I think even the opponents of the use of shale dust will agree with me here.

But I know that the opinion is that it cannot be applied at the face, and this factor was what I wanted to get cleared up. I assumed that an explosive mixture had been ignited by a defective safety lamp at the point *X* and asked what should have been done to prevent such an explosion from spreading and causing the deaths of several men?

Stone-Dusting in Room-and-Pillar Workings

Sir William replied that he would heavily shale-dust the crosscuts between the rooms to prevent the flame from spreading from room to room. Mr. Lloyd agreed but added that he would also shale-dust the room necks. Mr. Harrison went further and said that in addition to the crosscuts and room necks he would place as much shale dust as possible around the entrance to each cross-cut, so that a large amount of incombustible dust would be raised at the points so that the flame would, as it were, be nipped in the bud.

The man who ignites the gas, or the man who fires the shot will, in most cases, be killed, and also the men immediately about him. But those great disasters which cause the deaths of hundreds of men can be prevented, by the use of shale dust. By killing the flame we prevent the formation of those poisonous gases which are found in the afterdamp. And as a rule that explosion product is responsible for the majority of deaths in a mine explosion.

Experiments at Bruceton could prove whether the flame could be stopped by heavily shale-dusting the crosscuts between rooms. I am of the opinion that the crosscuts should be wide enough and high enough to hold shelves.

Some statements having been made concerning the difficulty of shale-dusting large Pennsylvania mines like Marianna, Vesta, etc.; I wish to say that I have not visited any mine in the United States which is more suitable to the shale-dust treatment than Vesta No. 5, and this mine will in all probability be eventually the biggest producer in the country.

Heavy Coke Production in New Mexico

The quantity of coke made in New Mexico in 1913, according to figures compiled by E. W. Parker of the U. S. Geological Survey in coöperation with the Geological Survey of New Mexico, was 467,945 short tons, valued at $1,548,536. This was the maximum record both in quantity and value. Compared with the output of the previous year, it showed an increase of 54,039 tons, or 13 per cent. in quantity, and $191,570, or 14.4 per cent. in value.

All of the coke made in the state is from coal mined in the Raton field in Colfax County. This field is the southern part of the Raton Mountain coal region, which consists of the Raton field in New Mexico, and the Trinidad field in Colorado. The coal measures are continuous, but the producing areas are separated by a high divide near the Colorado-New Mexico line.

Slack coal is used in the manufacture of coke and as over 25 per cent. of total output of the mines yielding coking coal goes into slack, an ample supply for the coke ovens is available. All the ovens in the state are of the beehive type. At Dawson, however, 446 out of a total of 570 ovens, although of the beehive type in construction, are provided with under flues, through which the gases are conveyed to a large passage, back of the ovens, and thence to the power house. The heat obtained from the oven gases renders the use of other fuel in the power plant unnecessary.

This plant in addition to furnishing power for the operation of the mines for ventilation, electric haulage, the coal crusher, washery, etc., furnishes also steam heat to the offices, commissary, hotel, hospital and theater. and electric lights in the city of Dawson.

The Destruction of Forbes

By L. C. Paddock*

SYNOPSIS—Forbes was not protected by mine guards and did not belong to the Colorado Fuel & Iron Co. Yet it was destroyed by the "strikers" before the Ludlow battle. A short description of the incident, mostly in the words of R. Nickol, the superintendent of the mine.

On the 28th day of April about five o'clock in the afternoon an Italian called up his brother at the Forbes mine, which lies about 12 miles northwest of Trinidad, from the union headquarters at the latter place, telling his brother, who is a non-union man, that he had better leave the town because the strikers were going to come there that night and burn up the Forbes mine. Mr. Nickol, the superintendent, said:

"When I received this notice I sent three men to the lower end and three to the upper end of the town to guard the mine buildings, and I put the women into the mine tunnel and sent 12 miners there to protect them; we had no mine guards whatever and had to depend upon volunteers, and I and a few others went to the building where our telephone was stationed. We guarded all night and until about 5:30 in the morning.

"While standing in front of my house a large number of strikers who had taken their position on the hill tops above the mine building and dwelling houses began firing a fusillade of bullets at us and into the houses. These strikers had red bandana handkerchiefs tied about their heads.

A NEW USE FOR THE WHITE FLAG

"Among them was a tall man wearing an overcoat and bearing a white flag. This man seemed to be the leader and from time to time waved the white flag in the air, and as he did this the strikers on the hills fired their rifles; the air was full of bullets. One crashing through the sash went over my left arm; as I stepped into another room another came through the wall blinding me with the plaster dislodged.

"While standing near the door another bullet crashed through carrying splinters into my hands. Over 40 bullets passed through the house while I was there, and how I escaped being killed I do not know. The shooting continued from the miners on the hill tops; I could see the tall man still continuing to wave his flag and volley after volley of shots resounded almost constantly from this hill and from the other hills around the camp and this continued until about 6:45 a. m.; then they seemed to run out of ammunition.

"I then went to the mine tunnel where the women were; they were safe but crying and hysterical. From that point I saw great black clouds of smoke rising from the buildings in the vicinity of the upper portion of the camp. I and others went up there. As I approached it I saw three of the dwelling houses burning, saw the barn and other structures in the upper canon on fire; the air was thick with smoke and the heat was intense.

AS HORRIBLE AS LUDLOW

"As I approached the three dwelling houses I noticed the body of a Japanese; he was lying on his back with his arm over his face. He was dressed in his underwear and had a bullet hole through his breast. This Jap and the others had worked in the mine for about five months.

"About 20 ft further on up the tram track I found the body of Edward Kestler lying near one of the burning buildings. Kestler was lying on his back and the flesh was burned off his legs, his head was burned and his face blackened, his clothes were burned off. Kestler was the mine engineer, about 45 years of age, married and had a wife and two children living in Denver. He had been working at the mine for about a year and a half.

"Next I found the body of Jack Smith, a coal miner. He had a wife and six children. He had been killed by a bullet, had been shot through the right leg just above the knee, his leg was broken and he was also shot through the head. The bones of a Japanese were found in a burning building. The flesh was burned off and the bones were so black and charred you would hardly recognize them as a human skeleton. Back of the rock supply house were the bodies of two other Japanese. Both were dressed in their underwear and each had been killed by a bullet. The substation was on fire.

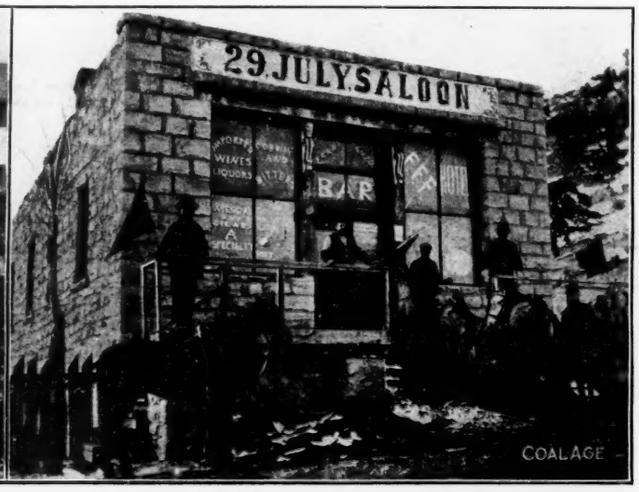
EVEN THE MULES WERE BURNED

"Then I noticed at the barn there were the bodies of 24 mules and two horses in the places where they were tied, the bodies in every imaginable shape. Three mules and three horses out in an enclosure had been shot. We then went toward the 20-roomed rooming house which was in flames, and near the tipple at the lower end of the mine we found Newman, the blacksmith, lying on his back; all his head above his eyes and ears were shot away; he had been shot from behind by a soft-nosed bullet. His wife was with the other women in the mine.

"I found that all the buildings at the lower end of the town were burning and that the strikers had a fire-setting brigade, the members of which wore white strips of cloth over the shoulders down the front and back so that the strikers on the hills would recognize and not shoot them. After shooting awhile the firing brigade would be sent down by the invaders to set fire to the buildings. Some of the people, both of the men and women, were taken prisoners, and later escaped.

"I will not take time to tell you of the robberies and horrors they underwent. After killing nine people, burning

Body of the Blacksmith Newman after Forbes Attack



A Saloon for Avowed Anarchists at Aguilar, Colo.

Editor, "Daily Camera," Boulder, Colo.

Note—This article appeared in the "Daily Camera," and we are indebted to that paper for the photographs which we here reproduce.

all the buildings, the 250 strikers marched back in broad daylight into the city of Trinidad."

The character of the people engaged in this ruthless war is well illustrated by the picture of the saloon accompanying this note. It shows a saloon in full blast near Aguilar which is in the same coal field as Forbes. It is known as "The 29th of July Saloon" which is significant as illustrating the temper of the foreign element. This drinking-place was so named because on July 29, King Humbert of Italy was assassinated by a fellow-citizen of the owner of the saloon. To kill those who are the heads of the state is the hope of anarchy. Men could sit in that saloon, drink beer and think of blood. Three times Lieutenant Ray Benedict with a detail of troops pulled down the red flags of anarchy on that drinking house.

The picture we present shows the flags in position prior to the last time they were pulled down. That saloon is now closed by federal orders. Is it too much to hope it will forever remain closed?

Extracts from a Superintendent's Diary

I have lately attempted to get a line on the papers that seem to be the most popular with our miners. Much to my surprise, I find that the honors are about evenly divided between two weeklies that I had not even heard of before. One is a rabid socialistic organ and the other is an anti-Catholic paper, also best described as rabid. A third paper which enjoys some popularity poses as a straight-out weekly newspaper, but its news is sensational in the extreme. Yellow journalism with a few streaks of red and scarlet.

Since discovering these weeklies, I have been reading them in good earnest, not only devouring the current issues, but getting all of the back numbers possible. And this is the opinion I have formed about them: They are simply great destroyers, they everlastingly hammer away at something, either a man's reputation or a company's shortcomings, or a church society's disgrace. They have no desire to build up, apparently it is so much easier to tear down. Furthermore, they attempt to make everyone dissatisfied with one's surroundings, but do not bother about suggesting means of bettering things. Any three current issues read in rapid succession would make the keenest thinker addle-brained. Compared to them, the Police Gazette and dime novels are soothing.

If the average miner has been looking to such papers for inspiration during many years, any overt act of theirs can be easily justified. The miracle is that not more of them are found in asylums.

If one can be convinced that the government is "agin" him; that his employers are "agin" him; that the daily papers are "agin" him; and even his God is "agin" him, what prospect has he of lying down at night to peaceful dreams. And what prospect has any of his neighbors of being able to live near him in peace and quiet.

I recall a statement made by one of our Bank Committee last week and I realize now where he received his prompting. He suggested that any person who was satisfied with his surroundings and refused to resent misfortunes, but considered them as acts of Providence, would soon die of dry rot.

Yet, these weeklies are very anxious that none of their readers should become victims of such a terrible state of mind, and the reason, therefor, is that they depend upon their subscribers' voluntary work for any increases in circulation. They want to excite them to a point where they can't sleep unless they have induced at least one of their fellows to also read the paper.

But the unfortunate part of the entire discovery is that I am powerless to change matters. If I should suggest to any of the men that such literature should be avoided, every man in the camp would hear of it and those who are not subscribers at present, would be annexed to the list immediately.

Possibly some day I'll undertake a small weekly of my own and circulate it in our camp strictly for the benefit of our miners. Perhaps some of our young men might take to my arguments and assist me to reach the old fellows who just now realize so vividly the danger of attempting to live in a peaceful and contented manner.

Recent Legal Decisions

Shipper's Liability for Freight Charges—The fact that the shipper of freight may not be the owner of it does not defeat his liability to the railway company for the amount of the freight charges, unless the company knows that he is acting merely as an agent in making the shipment. (Texas Court of Civil Appeals, Chicago, Rock Island & Gulf Ry. Co. vs. Floyd, 161 Southwestern Reporter 954.)

Construction of Docks in Streets—When a dock is constructed on a river bank at the end of a street without authority having been first obtained from the proper officers of the city, the public will be deemed to have a right of way over the dock to the water's edge. (New York Supreme Court, Westchester County Special Term; City of New Rochelle vs. New Rochelle Coal & Lumber Company; 144 New York Supplement 852.)

Shipper's Responsibility for Injury to Car—One railway company which delivers a car owned by another to a shipper to be loaded, under a joint traffic arrangement between the two companies, can recover against the shipper on account of any injury to the car, caused by negligence on his part or on the part of his employees. (North Carolina Supreme Court, Asheville & East Tennessee Railroad Company, 80 Southeastern Reporter 406.)

Responsibility for Safety of Derrick—Having furnished a derrick of standard make and in perfect condition, for use of employees in handling coal, an employer was not bound to keep it in proper adjustment, to avoid injury to the employees; that duty resting upon them, for whose use it was furnished. (New York Supreme Court, Appellate Division, Third Department; Pierce vs. Atlantic, Gulf & Pacific Company; 144 New York Supplement 330.)

Conjectural Causes of Injury—An employer cannot be held responsible for death of an employee, through coming in contact with a counterweight, used in hoisting a large coal bucket, if it is left wholly to conjecture how he came in contact with the weight. In the absence of proof as to the cause of the accident, the workman having been found dead in the shaft, the court refused to determine whether the counterweight was such "hoist" as is required by the laws of Wisconsin to be safeguarded. (Wisconsin Supreme Court, Hansen vs. Milwaukee Coke & Gas Company, 144 Northwestern Reporter 289.)

Taxation of Mineral Lands—Land granted by the United States to the Northern Pacific Railway Company was conveyed by the company, subject to a reservation in the company of all underlying coal, together with the right to use so much of the surface as might be necessary in exploring for the coal. Held, that the interest retained by the company, while the land remains unexplored, constitutes property taxable as an interest in land; the interest not falling within the provision of the Montana constitution to the effect that "mines," after purchase from the United States, shall be taxed only at the price paid the United States therefor, which in this case would amount to an exemption from taxation. "That several estates in the same land may be owned by different parties is recognized generally. One may own the surface, another the growing timber, and a third the minerals underground, and each estate be subject to taxation." (Montana Supreme Court, Northern Pacific Railway Company vs. Mjelde, 137 Pacific Reporter 386.)

The Purchase of Coal on Specifications--I

By F. R. Wadleigh*

SYNOPSIS—The first of a series of articles that will cover this subject in all its ramifications. This installment takes up the abuses and prejudices common to the B.t.u. system of coal buying. Well defined remedies for these are advanced; other preliminary phases of the question discussed.

Probably the first large contract made in this country for the purchase of coal on a specification basis was that of the Illinois Maintenance Co., who in 1902 bought 20,000 tons on a B.t.u.-ash-moisture basis for use in steam plants of various buildings. The Interborough Co. of New York was probably the first large consumer to buy coal on a strictly specification basis, with premiums and penalties, having put such a contract into effect previous to 1907. The United States Treasury Department adopted this plan in 1906, and its use has gradually spread to all government departments, with the exception of the Navy.

At this date, several million tons of coal are being bought on specifications, and the use of this method is increasing every year, although there is now a growing aversion to it on the part of coal operators and selling agencies. The *London Times'* engineering supplement of 1908 said of the B.t.u. system:

> There are few materials required in our manufacturing and carrying industries which are purchased on a large scale with such a neglect of common-sense rates and precaution, as fuels. The majority of our manufacturers still purchase fuel by this rule-of-thumb method which satisfied the last generation.
>
> A user is not purchasing so many tons of a solid of uniform composition, but should be purchasing so many units of heat in solid form, as a matter of convenience.

Kent, in his "Steam Boiler Economy" (1901), says:

> To buy coal on the reputation of the district in which it is mined is not as good a way as to buy it on a guarantee of quality as determined by an analysis for water, volatile matter, ash and sulphur, but it is the most common way.

Advantages of the B.t.u. Method

These quotations, from two well known authorities, sum up the question briefly and in a general way, but there are many difficult details to settle before we can arrive at a thoroughly satisfactory solution of the whole matter.

The principal arguments in favor of this system of coal purchasing are as follows:

1st—It places all sellers on a similar competitive basis as regards both quality and price.

2d—It enables more sellers to compete, by rejecting trade names and fields, thus broadening the competition.

3d—Systematic and constant analysis of the coal establishes a standard for plant operation and gives more uniform results, often effecting definite savings.

4th—Mine operators are compelled to prepare and mine their coal with greater care.

5th—Disputes as to the quality of coal may be easily adjusted or done away with.

6th—If inferior coal is shipped, the buyer pays only for such quality, while if a better grade than the standard is shipped, the seller gets a higher price.

7th—An exact and definite basis for cancellation of contract is provided for.

8th—By ensuring coal of a uniform quality, the work of the fireman is made easier and more skillful firing is possible.

9th—Valuable and useful information as to coals and their actual quality is acquired by both buyer and seller.

10th—It enables the seller of high-grade coal to get a price commensurate with the value of his product.

11th—It gives to the seller of low-grade coals a chance to compete with the better fuels.

12th—It often results in the adoption of better combustion methods, enabling the power plant owner to use, in many cases, lower grade fuels.

Disadvantages of the B.t.u. Method

1st—It will result finally in making the consumer pay more for his fuel by increasing mine costs and destroying the balance of price between poor and good coals.

2d—It will defeat the principle of conservation of fuel, by operating in favor of the high-grade coals.

3d—Natural variations in coal from the same seam or mines make it impossible for the mine operator to control or guarantee any fixed heating value.

4th—It is impossible for the sampling to be always accurate.

5th—Coal can be sold by the old method with less trouble and expense.

6th—Poorer fuels will not be so much in demand, consequently will remain unmined and often lost entirely.

7th—Greater saving to the consumer would ensue if he would abolish wasteful methods of using coal, instead of trying to save a first cost in buying.

8th—Any saving would be more than counter-balanced by the expense of having chemists for making analyses.

9th—Competitive bidding between coals of different heating values would be restricted.

10th—Sampling is generally done by the buyer; it is impossible for the seller to always have a representative present, and the latter is therefore entirely at the mercy of the purchaser as regards proper sampling.

Preliminary Consideration

The purchase of coal on specifications is a condition as well as a theory; a very practical condition, too, and one that demands careful consideration by both the buyer and seller. Efficiency, the slogan of the day, is required in purchase as well as in use; it should apply equally to both. A sane and impartial viewpoint is necessary in buying more than in anything else.

Too many buyers have looked upon the purchase of coal by specifications as a remedy for their own inefficient methods of use, to be glossed over by using only high-grade fuel, which will give good results, even with the most wasteful equipment and ignorant, cheap handlers. Many specifications are in use that were written from the point of view of the consumer only. They are

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often loosely drawn up, badly worded, unfair and apparently looking only to getting the best article at the lowest possible price. In addition to this, they frequently leave out entirely, or dismiss in a few words, the most important thing—the sampling of the coal.

To buy coal intelligently on any basis, the buyer must first determine the kind and size most suitable for his particular plant. This can only be accomplished by actual working tests, and should be done before any contract, whether on a specification basis or not, is made.

The most efficient plant operation, at the lowest possible cost, is the basic consideration to the plant owner. As coal is a most important item, its purchase should be given the greatest care both by the one doing the actual buying and by the one responsible for its economical use, whatever may be his position.

No buyer should decide on specifications for coal to be used at his plant until he has considered carefully the following items and determined upon the kind of coal that will best suit his plant and conditions:

Boilers

1—Kind, capacity and arrangement.

Furnaces

1—Grates, surface and setting.
2—How operated, stokers or hand-fired.
3—If stokers, kind of and coal they will handle best.
4—If hand-fired, kind of grates and kind of labor available.

Draft

1—Amount available and how controlled.
2—Kind: Natural, forced or induced.

Load

1—Character; maximum, minimum and time.

Coal

1—Delivery at plant, method of handling, method of storage, how much.
2—Price at mines and freight rates.
3—Capacity of mines.
4—Conditions of delivery and movement from mines to plant.
5—Kind of cars to be used.
6—Moisture and its possible effect.
7—Volatile matter; its relation to furnace condition and smoke laws.
8—Ash; its amount.
9—Fusing temperature of ash.
10—Coking qualities.
11—Skill of firing.
12—Size.
13—Heating value.

What Coal Specifications Should Cover

The true object of the purchase of coal by this method is to ensure the buyers getting, during the life of the contract, the quality and kind of coal needed and a sufficient and uniform supply of it, at a fair price. These should be the main objects of all coal specifications.

To insure this, it should be specified:

1. Period of time covered by contract.

2. Kind of coal, amount needed and method of delivery; a standard analysis, as a description only.

3. The minimum and maximum of each constituent that affects the cost and efficiency of operation of the steam plant.

4. The standard price.

5. The scale of penalties or premiums to be charged up to cost of coal, which should be based directly on the losses sustained in plant operation from an inferior coal or the greater efficiency obtained from a better fuel.

6. The method of sampling to be used at each plant, giving also the amount of coal which each sample is to represent and the name of the person responsible for the sampling, who should be, whenever possible, the chemist who makes the analyses.

7. The method of getting at the final price, which should specify the amount of coal that each analysis represents, as a basis for payment.

One of the most important points about sampling is the question as to who is to do it. It would seem obvious that, as the buyer and seller are both interested, the sampling should be done by an outside party. But, in the operation of most contracts calling for sampling, the work is done by a representative of the buyer, whose chemists also usually make the analyses. To overcome this, there is generally a clause in the contract giving the seller authority to have a representative present when the samples are taken and analyses made.

Unfair Requirements Have Created Prejudice Against the B.t.u. Method

It is manifestly impossible, however, for the seller to always have a man on hand, and the practical result is that, as a rule, both the sampling and analysis are in the hands of the buyer. This is one of the reasons why many sellers object to this kind of contract, and there is no doubt that improper sampling by the buyer, whether intentional or not, has been the source of much trouble and many disputes. Even in the U. S. Government contracts, there have been serious complaints of the sampling methods, notably in the case of the coal bought for the Panama Canal work.

The most flagrant offenders in putting out unfair specifications have been the city and state institutions. As a general rule, they will find that their fuel costs have been higher than they would have been under the old system, as the coal sellers generally anticipated possible losses in their bids. Simplicity in the terms of such a contract should be insisted upon as most important.

The main point to be gained for the specification contract is the general acceptance of the main principle and acknowledgment of its value and fairness. Specifications have been too elaborate and in many cases coal sellers have bid blindly because they wanted the business, merely adding a few cents per ton to cover any possible loss that might be incurred.

Under the old methods, when a fuel has been chosen by a consumer and a contract made for a supply, he has generally concluded that his interests are protected as to quality by a provision that it must come from a certain colliery or collieries and from the same seam. Were this same consumer buying copper ore, he certainly would not consider this as sufficient grounds to insure that the ore would always be of the same value. Nor should such proviso be sufficient for the purchase of coal. That coals from the same seam may vary in quality is fairly well known, but that fuels from the same mine may also vary considerably is not so generally recognized.

Reliable Methods Will Produce Advantageous Results for Buyers and Sellers

As to the attitude of mine operators and selling agencies, opinions today are somewhat divided. Many of the large producers are quite willing to sell on a specification basis, provided they may be assured of fair treatment. Others are against selling on any such contract, and only do so when they cannot get certain large contracts in any other way. On the whole, a decided reaction has set in among coal sellers against the specification basis, and the same may be said about the large users and buyers.

To overcome this tendency, specifications should be so rearranged that the seller will see that it is to his best interest to handle his coal on this basis, and be assured that he will receive what is justly due him for the amount and quality that he supplies.

There is no question that the selling of coal by analysis has tended to make the mine operators more careful in the matter of preparation. Some of the mine owners who are not in favor of this method have issued statements to the effect that they are doing all they can to properly mine and clean their coal, and that selling on an analysis basis would not improve the quality. In some cases at least this has not been true; as a rule, they have given particular attention to shipments sold on specifications, either by selection of mines or by better inspection of the coal.

There has also been a decided tendency to add to the price of coal when bidding on a specification contract, usually from two to five cents per ton; this increase is partly to overcome any additional cost of preparation and partly in anticipation of losses due to penalties for inferior coal.

The first requisite to any universal adoption of this system of coal purchase is the establishment of confidence in the sampling and analyses. At present this is lacking in many instances, and quite often rightly so. This is due to the taking of samples by interested and ignorant employees, and also because the making of calorimeter tests is left to persons not specially trained in its use, whose work could not possibly be accurate enough to use as a basis for payment of coal.

Specification System in Europe

The purchase of coal on a specification basis is much more used in this country than abroad, although applied for years to some extent, and along certain lines, in Germany. It is now in use by a number of companies in England, Sweden, France and Italy.

Recently, the Chemical Subcommittee of the South African Engineering Standards Committee has submitted two valuable reports covering coal sampling, standards for analysis and sizing of coals for commercial use. This report is a valuable and interesting one, going into every detail of sampling and analysis, as well as sizing. Its length precludes printing here in full, but the following items are treated fully:

Colliery Sampling.
Sampling Ships' Cargoes.
Bunker Sampling.
Car Sampling.
Laboratory Treatment.
Moisture, Ash, Volatile.
Sulphur Determinations.
Calorific Value Determination and Details.
Standard Sizing of Coal.

The present status of opinion on the subject in England is indicated by the following editorial from the *Iron and Coal Trade Review*, under date of Mar. 28, 1913:

In another column we publish particulars of the coal contract specification and conditions, which have been agreed upon between the Associated Municipal Electrical Engineers of Greater London and representative firms of contractors in the London coal trade and also approved by the Society of Coal Merchants. As pointed out in our issue of Mar. 7 its most important feature is the recognition of the principle of selling coal in terms of heat units and the adoption of a scale prepared after careful and expert analyses, forming a basis of calorific values upon which business may be done under the new conditions. The seller is to receive a bonus should the coal prove to be above the standard and to pay a penalty should it fall below, in accordance with what is now the common practice in the United States.

It will be noticed also that a standard is given for each class of coal in regard to the percentage of small and that the buyer has the right of rejection if that percentage be too large. Moisture is also included, but not ash, which has been eliminated as superfluous, because a high ash content means decreased calorific value. Sulphur must not exceed 2 per cent., and that, of course, is important, since a high percentage is destructive to fire bars and undesirable in other ways as well.

Under this form of contract no particular colliery need be named, the contractor reserving the right to supply sized coals from any collieries in the districts indicated. This, of course, is a matter of indifference to the consumer since he has his calorific guarantee. The grouping of the districts has been done simply as a matter of convenience and for the sake of brevity. As to the way of taking and testing samples, that is briefly outlined, but we are informed that the whole matter has been put before the Engineering Standards' Committee with a view to formulating a standard system.

Experience alone will show how the scheme will work out in operation, for laboratory analyses are not always a reliable guide to practical results in boiler furnaces. Coal which proves satisfactory at one plant is often the reverse at another, so much depending upon the condition under which it is burned. Sellers will learn in time what prices to charge for the coals they guarantee and competition may be relied upon to prevent the general level being too high. It may be also that the table of standard values will have to be modified in one way or another; but in any case the new specification represents an earnest attempt to provide a practical basis upon which coal can be sold under guarantee.

The Colorado Strike Affects the Coke Output

The output of coke in Colorado in 1913 was 879,461 tons, valued, according to E. W. Parker, of the U. S. Geological Survey, at $2,815,134. The decrease as compared with 1912 amounted to 93,480 tons in quantity and $228,860 in value and was due entirely to the labor trouble and not to adverse trade conditions.

The principal labor disturbances were in Las Animas County, the leading coal-producing and coke-making region; this was responsible for a falling off in coal production of nearly a million tons and the whole decrease in the output of coke.

There are 15 coke-making establishments in Colorado which operate 3588 ovens, all of the beehive type. Six of these firms operating 726 ovens were idle throughout the year. In addition, 980 ovens were idle at plants which made some coke during 1913 so that the total number of idle ovens was 1706 or nearly half the coke capacity of the state. No new ovens were under construction at the end of the year.

According to returns made to the Geological Survey, the average value of Colorado coke advanced from $3.13 per ton in 1912 to $3.20 in 1913. These fluctuations are, however, more apparent than real. A large proportion of the coke produced in the state is made in ovens which are parts of plants including in their operations coal mining, coke making and the manufacture of iron and steel or the smelting and refining of the precious and base metals. For such plants, the placing of a value on the coke produced is an arbitrary matter and does not represent market conditions. Only about 30 per cent. of the total output of Colorado in 1913 was commercial coke.

The complete inclosure of all live parts within substantial grounded metallic outer coverings is the best safeguard against every kind of electrical accident.

The Labor Situation

SYNOPSIS—The eastern Ohio miners are trying to get a sympathy strike in Pennsylvania, but if it occurs the action will probably only extend to concerns mining coal in both states. The Vancouver strike is declared off. The old scale for 35 independent operators and their men in Colorado has been renewed. General scales are now completed for Washington, Oklahoma and Arkansas.

Everywhere in Ohio except in the eastern district, the mines are beginning to produce their normal output. During the past week more mines were put in operation in the Hocking Valley, Pomeroy Bend, Jackson, Cambridge, Massillon and Crooksville districts. Working conditions have proved satisfactory and little friction is reported.

The Ohio Industrial Commission has not yet been asked to decide the question of the percentage of impurities or the proportion of slack allowable in the coal as loaded by the miners. Both problems have been settled by agreement between miners and operators, at least for the time being. A docking system for impurities has been provided and it is working satisfactorily.

Officials Are Opposed to Miners Assembling

The eastern Ohio miners are anxious to return to work. Operators who have mines in that district profess to believe that the rank and file of their employees would return to the mines at almost any scale, but are kept in check by the officials of the miners' organization. The officials are strong in the determination to adhere to the 47c. rate for machine-mined coal.

In fact they have circulated a letter to their following in subdistrict No. 5, informing the members that "certain people, bosses or superintendents" might advise them "to call special meetings and to adopt certain measures in order to end the strike, not for" their "benefit, but for the benefit of the bosses." They urge them not to call any meetings of the local for the purpose of arranging terms of settlement unless they are officially notified to do so by the subdistrict officials. That such a notice as this, which is dated Aug. 15, has been found necessary is a sign that a sentiment for concession is somewhat generally present.

What the Eastern Ohio Operators Declare

The position of the eastern Ohio operators is well defined by Thomas L. Lewis in his Coal Mining Review, and is about as follows:

The miners were to negotiate for a scale in which the price was to be the same as before or else the equivalent of the price heretofore paid. Now the miners have taken this as if meaning that the price paid in Ohio, as a whole, shall be equivalent to that paid, as a whole, in the previous scale, though in different districts the change may give a higher or lower equivalent.

Thus in the Hocking district 72 per cent. of the coal output was paid for. The other 28 per cent. was handed over to the operator without payment. He paid for that 72 per cent., 69½c. per ton, so that it was as if he had paid 50.04c. for the whole of the coal. Similarly the Guernsey district produced 32 per cent. of screenings and hence only 68 per cent. of the coal was paid for. The operator paid 69c. per ton for the sized coal and that was equivalent to a price of 46.92c. for all the miner produced. In the eastern Ohio district the rate was 69½, but the free screen coal rose to 36 per cent., so the miner was paid on only 64 per cent. and the equivalent would be 44.48c.

The Miner Seeking More Than an Equivalent

Clearly, then, the miner in the eastern Ohio district is trying to better his position in making his new contract. Of course, it might give him a higher rate, yet less steady work and consequently small pay,. He is trying, however, that is clear, to get more than the equivalent of the former wage despite the fact that there is now less incentive for him to prepare lumpy coal, and that the companies, even in case of a rigid mathematical equivalent, would be subjected to loss from the change. But it is true that as the joint-scale committee on Mar. 24, 1914, failed to arrive at an agreement, neither miner nor operator is bound to seek the exact equivalent of the former scale rate.

The Hocking Valley Operators Won an Important Concession

On the other hand, the miner in the Guernsey district has been satisfied to go back to work at the mathematical equivalent or its close approximation and the miner in the Hocking Valley district has consented to accept 47c. instead of the mathematical equivalent, which is 50.04c. That is he has agreed to go back for a decrease of 3c. and more per ton or over 6 per cent.

Thus there were parts of Ohio where the miners' demands were not unreasonable, and here an agreement was soon made. But in eastern Ohio an equivalent was not sought, but a better wage instead. We must not forget, however, that the miner has this justification. He has realized that an unequal wage was being paid in Ohio under the lump-coal scale and he has determined to wipe out this discrimination. The eastern Ohio operators have profited by the larger amount of slack which they got without payment.

On the strength of this discrimination, like West Virginia and Tennessee, they have extended their field of operation and now if this difference is removed and wages are equalized, they must be content to occupy a restricted field, and those who work for them will find an almost universal law facing them and that is this: That an increase in relative wage will be more than balanced by a decrease in regularity of employment. Both miners and operators are likely to be sufferers.

The trick worked by the miners has been clever. They used the lowered equivalent in some districts as a pry to help them in others and they promised to make the 47c. rate binding on all districts alike. It remains to be seen whether they will keep their promises to the other Ohio operators or will follow the instructions of the Union as interpreted by the eastern Ohio operators and renew the scale with what the latter deem an exact mathematical equivalent, namely, 44.48c.

Both Miners and Operators Show Little Respect for the Equivalent

It is clear that while the miners are trying to get a rate of 47c., which is 2½c. above the equivalent of the old rate, the individual operators who are seeking to operate without a district scale are trying to pay them only 42½c. and 43c., which is 1½ to 2c. lower than the exact equivalent. In fact, the operators as a body still seem to stand firm on 41.12c. as the price they are willing to pay for run-of-mine machine coal. This is done partly because of the advantage given the Hocking Valley operators by the change, partly to assure against loss from poorer coal, resulting from a run-of-mine scale, and partly so as to put Pittsburgh coal operators in Ohio on a footing more nearly equal with that of the operators mining that bed at Pittsburgh.

The Blockhouse mine of the Dexter Coal Co., at Brilliant, which was operating under the 47c. rate, has been closed down. The receiver says that it was impossible to mine coal at that figure, the coal was so dirty and the rate so high. Of course, there may be other causes, but eastern Ohio operators consider that the failure to operate the mine with success points their moral satisfactorily.

To Strike in Pennsylvania

The miners are anxious to bring pressure to bear on the M. A. Hanna Co., the Youghiogheny and Ohio Coal Co., the Ohio and Pennsylvania Co., and others by promoting strikes at their mines in other states, which are filling the orders which would otherwise be filled in Ohio. The executive board of the United Mine Workers is said to have ordered these strikes, which shows that the board believes a contract is not a contract under certain eventualities.

The operators are anxious to begin producing in eastern Ohio, as their markets are rapidly being invaded by other districts and they fear they may not be able to recover them.

Peaceful in West Virginia

In West Virginia, there has been little trouble. The Four States Coal Co. is expecting that a peaceful result will follow its conferences and has made a temporary agreement with its men. In Maryland, a state not much disturbed by strikes, a small corporation, the Maryland Coal Co., at Lonaconing, has a dispute with its miners. They want 25c. per yd. for removing rock and have gone on strike.

The contract for Oklahoma and Arkansas, in district 21, has been completed by the conference in session at Kansas City. As noted last week, the Kansas contract has also been completed, and the Missouri agreement is practically finished. Thirty-two mines became idle on Saturday, Aug. 22, the men refusing to work without a contract, or quitting because of disputes within the union. It is believed that when the contracts are finally approved by the conventions of the districts on Aug. 31, the men will return to work.

Scales in Washington and Colorado

An agreement has been made in District No. 10, the operators and miners convening in Seattle, Wash. The old scale will be renewed, but the wages of firemen will be increased and free tools will be supplied company miners. The miner's convention will reconvene on the 25th to ratify the agreement. The miners asked for an increase in the mining rate, which they knew they could not get. There is no sense in making demands for the purpose of having concessions to offer. Neither operators nor miners should spar for points. It weakens everybody's faith in the justice of a cause if the parties presenting it habitually ask for more than they can expect.

Another agreement was one in Colorado made between the United Mine Workers of America and 37 independent coal operators. The wage scale was renewed, which had been in effect since Sept. 1, 1913. The operators came from all parts of Colorado, eleven being from the northern field and nine from the Walsenburg district, Huerfano County. Several were from Crested Butte, in Gunnison, and from Palisade in Mesa County. Some came from El Paso County and a few from Routt and Fremont Counties. So the settlement, if not important from a tonnage point of view, covered almost every section of the state.

Federal Troops Likely to Remain in Colorado

Federal troops are apparently destined to long service in the Colorado coal fields. The attempt being made by the administration to accelerate settlement will be found described in the editorial department. Nothing is being done toward reorganizing the state militia, the present numerical strength of which is below minimum emergency figures.

It is said that the European war has made demands upon about one-third of the coal miners in the southern field as subject to military service in the countries affected, but until Bulgaria and Italy mobilize, the statement seems excessive.

Judge Charles Cavender has ruled that 26 strikers, who are charged with murder, committed in the attack on the Chandler mines, Apr. 25, must stand trial. In his ruling, he denied a motion to quash the indictments and set trial for Oct. 5. Each defendant was required to file bond for $4000.

Coal operators of Colorado are issuing bulletins headed, "The Struggle for Industrial Freedom," in which replies are made to false statements that are circulated throughout the nation concerning acts of mine owners and the national guard. Bulletin 12 is a letter written by Governor Ammons, giving a short, straightforward history of the war and covering alleged brutal acts of militiamen and "gunmen." Bulletin 13 deals with the activities of "Mother Jones," as explained by Gen. John Chase, and is a direct refutation of the assertions made by one John Reed, who published, in the July "Metropolitan Magazine," his scurrilous version of the late disturbance as obtained from agitators and their allies. Copies may be had by applying to J. F. Welborn, 720 Boston Bldg., Denver.

In Vancouver, the strike has failed completely. It began May 1, 1913, and cost the Union more than $1,000,000 and now by a vote of the Union, the miners have surrendered.

Franklin Bache Still Undismayed

In Arkansas, the Bache-Denman Co. has desired permission from the court to open up two small mines, the Beck & Keiffer and the Griffith openings, near Prairie Creek. They say the mines can be opened in a few days and at small cost. They are near No. 4 mine, which was so completely destroyed by Union men in the recent riots. The unrest in that section is considerable, as the men refuse to go to work till a definite labor contract is signed. The attempt of Bache-Denman Co. to do anything without federal protection seems futile.

On Aug. 17, Judge I. C. Pritchard, of the United States circuit court of appeals, granted an appeal to the Supreme Court in the case of J. Mitchell, T. L. Lewis and W. B. Wilson, appellees against the Hitchman Coal & Coke Co., appellants.

The three appellees are, of course, past leaders in the United Mine Workers of America. By an opinion handed down on May 28, 1914, they were conceded the right to form a combination to induce miners in West Virginia to become members of the United Mine Workers of America and to secure the highest wages possible by peaceful methods. The Hitchman Coal & Coke Co. contests that right.

The Floodwood Power Station

About Oct. 1 a central-power station located at Floodwood, Ohio, in the Hocking Valley coal fields, will begin to supply current to a number of small municipalities and the coal mines. Later the service is expected to extend to Columbus and other cities of the central portion of the state. Mine refuse will be utilized under the boilers in connection with coal, and all fuel will be free of transportation charges.

An enterprise of this nature has been agitated for a number of years. It took definite form last spring, when Close Brothers, of London, England, took hold of the financing end, through their agent, F. C. Elliott, of Chicago.

Floodwood is a mining hamlet on the banks of the Hocking River, four miles from Nelsonville, the assembling point for rail shipment of nearly all the coal mined in the Hocking Valley. It is the center of some 60 coal-mining operations.

The concern, known as the Ohio Electric Securities Co., has 1000 acres of coal land adjoining the power station Coal will be taken direct from the mines located thereon and dumped into a hopper, passed through a crusher and elevated to bunkers which extend the full length of the boiler room It will then be spouted from the bunkers to the stoker hoppers. The same machinery is to receive the ashes from pits below the stokers and convey them outside or to cars located over the coal hopper.

A modern power house of steel, concrete and vitrified brick is now under construction. There are being installed three 1500-kw. Westinghouse-Parsons turbines, with a continuous overload capacity of 25 per cent. and a 50 per cent. overload capacity for two hours..

Surface condensers will be located immediately under the turbines. Two Alberger corliss dry-vacuum pumps, also the wet-vacuum pump and centrifugal circulating pumps, are to be located in the basement under the power units.

The exciters will consist of one 50-kw. 250-volt turbine-driven and one 50-kw. 250-volt motor-driven set. These are to be located on the main engine-room floor.

In the boiler room the installation will consist of three Flanner water-tube boilers, each normally rated at 627 hp., and Foster superheaters, the steam pressure carried to be 200 lb., with 100 deg. F. superheat. Green chain-grate stokers will be used, and each boiler will be equipped with a Sturtevant induced-draft fan.

Each complete unit is guaranteed and will be capable of being operated at 100 per cent. above normal rating. The boiler-feeding equipment is to consist of one 4-stage centrifugal pump direct connected to a turbine and one 4-stage pump connected to a motor. The feed water will be heated by a 3000-hp. Cochrane heater.

Current is to be generated at 11,000 volts, 60 cycles, 3-phase, and transmitted at that voltage to the mines and towns within a radius of 10 miles, and then trans-

formed down to the operating potential. Beyond the 10-mile limit, the current will be stepped up to 33,000 volts and transmitted at that pressure to the various substations, where it will be transformed down and then distributed. Electrolytic arresters will give ample protection against lightning disturbance.

Provision for Additional Equipment

The entire installation has been planned on the unit system, so that the building can be extended and additional equipment added from time to time as required without disturbing the operation of the plant.

Immediate consumption which awaits the opening of the plant, as now provided for in contracts and business already secured, amounts to over 5000 kw. Municipal contracts, including several county seats, have been signed up for a term of years. A number of mines have also entered into arrangements with the company, and a 15-mile trolley line will be supplied with power.

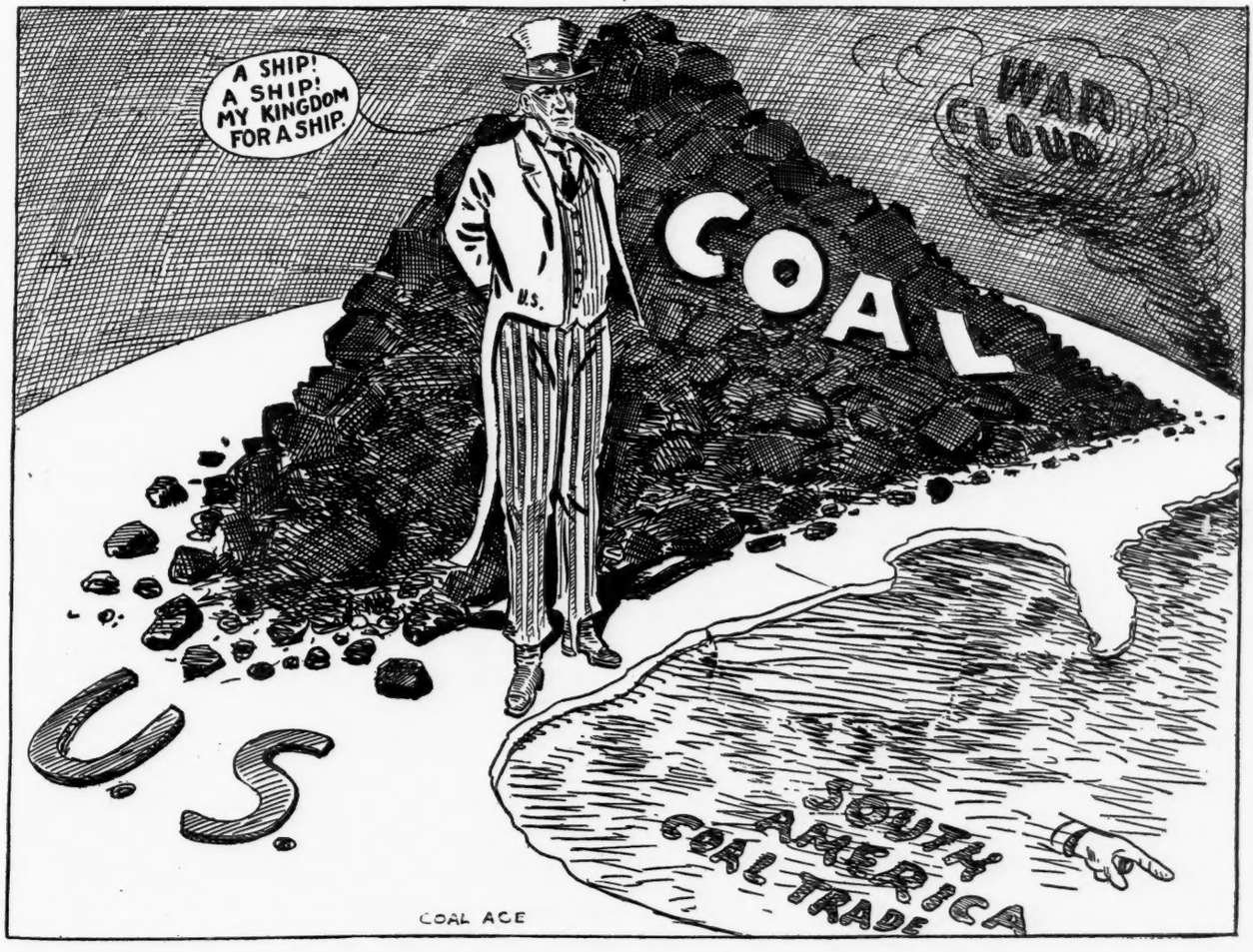
Within the general territory served by this central station are a score or more of big brick plants, one of which represents an investment of over $500,000. The great abundance of native clay, the deposits of which follow the coal measures, assures the further development of this industry, and will make an increasing market for electric power.

Anthracite Producers Burn Much Coal

An amount equal to nearly 12 per cent. of the anthracite tonnage shipped to market is consumed at the mines for steam and heat. This is shown by the latest report of the Bureau of Mines of Pennsylvania. In 1901 only 9.87 per cent. of the amount of coal shipped was consumed at the mines for these purposes. Ten years later, in 1911, the amount had risen to 11.47 per cent. while in 1912 it was 11.98 per cent.

Reduced to tons and dollars, these figures assume startling proportions. In 1901 the number of tons of coal shipped from the anthracite regions of Pennsylvania was 59,861,650, and the number of tons consumed at the mines was 5,912,900. In 1911 the figures were 79,775,010 and 9,152,073, respectively, while in 1912 they were 73,462,014 and 8,804,759.

Anthracite-coal producers are therefore, among the greatest consumers of their own product. At some of the deeper mines where much water has to be pumped over 25 per cent. of the coal produced is used for steam and heat. In order to operate all the machinery required, 531,289 hp. had to be produced by steam in 1912, as against 526,643 in 1911.



Plenty to Sell, but No Way to Deliver

Who's Who in Coal Mining

Josiah Keely

The Cabin Creek Consolidated Coal Co., in southern West Virginia, is one of the most successful operations in that little mountain state. The corporation as a whole reflects to an advantage the aggressive personality of its general manager, Josiah Keely. Mr. Keely is a "sure-enough" native of the state where his fortunes have been cast, for he was born at Charleston, the capital, in 1874, and received his first degree from the university at Morgantown, in 1896.

Josiah Keely is the sort of man who figures that the attainment of an education requires a life-time of study. It is not surprising, therefore, to find that eight

Josiah Keely

years after he left the W. Va. university with an A. B. degree, he finished work at Harvard, entitling him to a still higher honor in the form of an A. M. degree from that famous seat of learning.

Following the completion of his undergraduate work at Morgantown in 1896, Mr. Keely was appointed principal of the W. Va. Preparatory School, at Montgomery. He continued in this capacity until 1907, when he decided to change his vocation from educational to mining work. Starting in as a billing clerk and payroll man for the Consolidation Coal Co., at Gypsy, W. Va., he soon obtained a valuable practical training in his new line of endeavor, at the same time completing the course of study in mining, outlined by the International Correspondence School.

Serving the Consolidation company for some time in various subordinate positions, he was finally appointed superintendent of one of their mines, which work well fitted him for his next job as assistant to the company's general mining superintendent.

After nine months' service in the last mentioned position, Mr. Keely was made district superintendent for the same company, at Acosta, Penn., leaving this place in January of this year to accept his present employment as general manager of the Cabin Creek Consolidated.

From 1902 to 1907, he was a member of the W. Va. State Board of Examiners. In 1905, he was treasurer of the W. Va. Teachers' Association, and is at present an active member of the W. Va. Mining Institute.

Johiah Keely is a broad-gage man. His early training and work in educational lines fitted him well for specialization in the coal field. Mine managers today must be able to understand something of human nature; they must be able to see and feel from the viewpoint of the man working at the face; they must be practicalists in the art of substituting themselves at all times for the men they direct—Mr. Keely is such a man, for he is the personification of modesty and humanity, with a sprinkling of perseverance to make the combination lasting.

American Mine Safety Association

The annual meeting for the transaction of business, presentation of committee reports, etc., of the American Mine Safety Association will be held at the Waldorf-Astoria Hotel, 34th St. and Fifth Ave., New York City, Monday, Sept. 7, to Thursday, Sept. 10, inclusive, in accordance with the following preliminary program:

Sept. 7—Morning—Meeting of executive committee and of other committees, in accordance with calls of chairmen.

2 p.m.—Address of welcome by city official. Reading of minutes of preceding meeting. Report of executive committee. Adjournment to give committees opportunity to meet.

Evening—Banquet at 7 o'clock.

Sept. 8—Morning—Business session. Committee reports. First-aid demonstration by team from Lehigh Valley Coal Co. Round table luncheon. Subject, "Encouragement of Training.

Afternoon and Evening—Excursion to Coney Island.

Sept. 9—Morning—Business session. Committee reports. Mine-rescue demonstration by team from Delaware & Lackawanna R.R. Co. Coal Department. Round table luncheon. Subject, "Safety Organization."

Afternoon—Visit American Museum of Safety.

Evening—Smoker at 8 o'clock.

Sept. 10—Morning—Closing business session and adjournment.

Afternoon—Boat excursion.

Following the close of the annual meeting those who can are expected to attend the annual mine-rescue and first-aid contest, to be held under the joint auspices of the American Mine Safety Association, the United States Bureau of Mines and the Coal Operators' Association of Indiana, at Terre Haute, Ind., Saturday, Sept. 12, at 10 a.m.

Guests, including ladies, are invited to attend, but will be required to pay for their accommodations at the banquet, smoker and boat excursion. Members will be required to pay for the banquet, but probably not for the smoker or excursion.

W. Hargreaves, a Yorkshire mining expert, says there can be no doubt every prudent and economical mine manager will consider the question of stone dusting at the earliest possible moment, for if ever a cheap form of insurance was put before colliery owners, this is the one. The mining industry will be greatly lacking in a sense of duty if it does not put itself into shape for taking action in advance of anything that may be suggested in the way of legislation.

Editorials

Expansion in the British Export Trade?

It will be a distinct surprise to many of the American operators, now investigating the possibilities of securing a foothold in the world's coal market, to know that England is likewise quietly laying plans for materially broadening the scope of her operations in this field. Germany, of course, has become a heavy exporter in recent years, but with her navy bottled up and acting purely on the defensive, British operators have little to fear from competition in that direction. Belgium is, of course, completely paralyzed by the incessant fighting within her boundaries, while France has insufficient coal to supply her own needs, and is a heavy importer herself.

In addition to this, the internal consumption of Great Britain will be heavily restricted, as a result of the general cessation of industrial plants, which will release large tonnages for use in other directions. It should also be remembered that the countries so far involved in the war take but a small proportion of the British coal exports—in fact, only as much as India and Australia alone. This means that there is still a large market for their production.

On the other hand, Great Britain is at the present time facing a number of severe handicaps, such as the heavy Government bond required on all foreign shipments, and the withdrawal of the Welsh products entirely from this business. It was upon the excellent quality of this latter fuel, considered by many the highest grade of coal there is, that Great Britain has reached her enviable position in the world's coal markets. The fact that it has been withdrawn entirely will now place some of the American fuels, such as, the Georges Creek, the Pocahontas and the New River grades easily in the lead among the fuels available in foreign markets.

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Developments in the Export Trade

Among some of the most important developments in the world's coal markets, as a result of the European wars, has been the rigid restriction put upon foreign shipments by all of the countries involved, as well as a number of those still neutral at the present writing. Netherlands has closed down completely on **all** exports of coal and coke, and Italy has done likewise on foreign shipments of coal. Germany has gone even further, and prohibited not only the exportation, but also the transit, of all raw materials that might in any way be construed as munitions of war, including iron ore, coal, lignite, coke, and briquettes. Decrees have been issued in both Norway and Spain, prohibiting the exportation of coal, coke and mineral oil.

England has, of course, withdrawn her famous Welsh coal from the world's markets, prohibiting exportation even when consigned to neutral powers. Other varieties of the British product are understood to be still moving along certain channels. In this connection the exports of the United Kingdom, the current figures of which have just become available, are of particular interest to American operators. For the first seven months of the current year, the gross exports aggregated 43 million tons as compared with 44⅓ million tons for the same period in 1913.

The exigencies of war conditions have necessitated the adoption of rigorous measures which will severely handicap the British exporters. For instance, the Government now requires that bonds be deposited, aggregating three times the value of the consignments, hoping in this way to eliminate the possibility of the coal being diverted to the enemy. This measure met with such strenuous objection on every hand that it is probable that it may be somewhat modified so that more latitude will be granted consignees, about whom there can be no question as to their reliability.

The situation has been further complicated by financial difficulties involving credits. The English exporters have enormous sums owing them already on past business, and with a general moratorium in effect in all European countries, collections are at a complete standstill. But even in the face of all these enormous difficulties, the American exporter must not entertain exaggerated ideas as to his prospects, for England is still shipping much coal to foreign markets, and will gradually solve all the many problems that are now confronting her.

In view of the importance of the present export business, our next issue will contain a bibliography compiled by an authority on the export trade.

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Impartiality

Now and again there comes with a letter of approbation from a reader, a request that we endeavor to be impartial. But it is not true impartiality he desires, but a blind acquiescent neutrality to all points of controversy. There is little use for impartiality of this sort in this world. Only those who take a definite stand for right can ever be successful, especially in the printing of a journal for intelligent and conscientious people. No one desires a wishy-washy defense of practices, which are known to be indefensible and of people who are acknowledged to be doing wrong, nor do they want a journal which avoids dangerous subjects on the ground that they are not technical.

But partiality must always be for the truth and for the right, and not for any special side in a controversy. Either the weaving of halos indiscriminately for opertors or the writing of untrue panegyrics of labor leaders is a type of partiality which is neither ethically nor commercially sound.

We have a mental blueprint which we desire to use as a guide in our framing. We hew with our adze to follow its lines and any chips knocked off other than those thus planned, spoil the whole value of the stick, and every

splinter left in place which the plan says should be removed, must be struck manfully away before the work is complete.

We could reduce the whole timber to kindling or leave it unhewn, but it is not our purpose so to do, and let us hope the blueprint we have made, the purpose of our labors, is as well schemed as it is well intended. To that purpose we are partial and let us hope that to it we will always give our unhesitating adherence. Those who ask us to take another viewpoint, ask of us to be false to our convictions, to make the paper an organ of this or that interest.

And when we hear that word "organ" comes the thought of a deaf man turning the handle of a hurdy gurdy. The tune is nothing to him; harmonies or discordant notes are alike to him so long as the money comes to his hand. We do not think of COAL AGE as the deaf man regards his organ. We want it to play our music, to exhibit our sense of harmony; though, to be sure, when other people would entertain the audience, we do not insist on our ideas of the perfect melody and refuse to them such liberties as we arrogate to ourselves.

The Mailed Fist

Sometimes a constitutional government finds its executive disposed to wipe away with one fell swoop all the protection that the constitution guarantees. In Colorado, the citizens passed sometime ago a law prohibiting the hiring of men outside the confines of the state to replace those who are on strike. Labor is a commodity just as is wheat or bread, but the voters of Colorado believed they could prevent their fellow citizens from buying that commodity in other states. In short, the workingmen of other states who had labor to sell were prohibited from selling it across the state lines. This it seems in itself made the "strike-breakers law" invalid.

But the United States Army has now replaced the state government in the strike districts of Colorado and has substituted its own will for both law and constitution. The following letter to a coal operator, similar to that sent to all union and nonunion operators in Colorado alike, clearly exhibits that the government despite the fact that it has a firm rein in its hands is now disposed to strengthen rather than relax its hold on the rights of the citizens.

In compliance with instructions from the War Department, dated Aug. 14, 1914, the following regulations on the employment of labor will be enforced in this district. Laborers recently hired who do not conform to these regulations will be discharged: (1) Miners must seek work at the mines. (2) Miners must not be gathered or brought in by operators. (3) Miners must be citizens of the State of Colorado. (4) Miners must have complied with the laws of Colorado which relate to miners.

I. WATERMAN,
Lieutenant-Colonel, 12th Cavalry,
Commanding U. S. Forces.

Now the definition of a man "recently hired" is open to question. All men hired since Sept. 23, 1913, when the southern strike started or even since the strike call in the lignite field in Mar. 31, 1910, might be included. The definition might even be put further back. It covers, however, a sufficiently extended period of time to leave in doubt the right to work of a large number of men in the mines, and if in force at the end of the present European war, may prevent any of the men from returning.

The first two rules are not new. They are interferences with the rights of workingmen and operators dating from last summer when the Department of War took charge of the situation. As we have said, they are clearly at variance with the constitution and could only be excused as a temporary measure.

The third rule is new. As perhaps a third of the men now employed in most mining camps especially in Colorado are not American citizens, they cannot be citizens of any of the states. If, therefore, they have applied for work and been hired recently in Colorado, they must be discharged. This regulation applies not only to miners, but to all the men working around the mine, even if they are in a degree skilled laborers. Mine foremen and engineers who are citizens of other states come under this head.

The new ukase, if the word "recently" is made to have a broad definition, will considerably reduce the output of Colorado and even if it is made to apply only to men hired since the rule went into effect, will prevent new men from being employed.

The administration has decided to destroy the opposition to the Union; it has determined to deliver the mines over to the United Mine Workers of America. We believe that the government of this country is not to be used to promote the private ends of any interest. Our good will toward a respectable unionism is not so strong that we believe the army should be invited to lift it into the saddle.

The Purchase of Coal on Specifications

Perhaps there is no single phase of the coal industry in which the practice and opinions have been so entirely contradictory as this much abused question of purchasing coal on a heat-unit basis. Fuel experts and specialists along these lines are generally in favor of the adoption of this method. But among the leading buyers and sellers of the country, there is a great diversity of opinions and the most significant fact is that we find the best informed men among the advocates on both sides.

By far the greater proportion of coal buying in this country is still conducted on the prestige of certain sections, seams or collieries; but on the other hand we find some of the most progressive companies such, for instance, as the New York Edison Co., refusing absolutely to contemplate fuel purchases on anything other than a strictly heat-unit basis. No doubt the abuse to which this system has been subjected, such as impractical specifications and ignorant sampling, supplemented by like analysis, is the direct cause of the bitter opposition which it has encountered in some quarters. Certainly, under these conditions, it may become exceedingly burdensome, if not disastrous, to the seller.

But whatever the merits of the contending theories may be, it has been deemed advisable to present an ultimate analysis of the problem. The initial article appears in this issue under the above title. The series will be written by F. R. Wadleigh, a man who has studied fuel problems in all the leading countries of the world and an accepted authority in this particular line. Discussions and comments from readers on the conclusion reached by Mr. Wadleigh are invited.

Sociological Department

First Annual First-Aid Meet of Utah Fuel Company

By A. C. Watts*

SYNOPSIS—The captains of the teams were not allowed to issue supplemental orders after the work of any team commenced. Two ladies' and one boys' team gave exhibitions of first-aid work. The report goes into detail as to the method of judging the contest. The rating of errors is not that of the American Mine Safety Association, possible demerits totaling only 53 points in 100.

To stimulate interest in, and increase the efficiency of, first-aid work among its employees, the Utah Fuel Co. has organized first-aid associations in all its mining towns. It is the intention of these organizations to educate the employees of the company, both under and above ground, in first-aid and helmet work, and to hold a competitive drill or contest annually at which time the Utah Fuel Co. will provide suitable prizes and medals for the winning team and will assist, in any way possible, to perfect and maintain a first-class first-aid organization at each of its camps. On the 24th of July, known and celebrated in Utah as Pioneer Day, the first of the series of annual meetings was held at Castle Gate, Utah. As this is a state holiday which is always celebrated with appropriate ceremonies, the First Annual First-Aid Contest partook of the nature of a celebration and reunion of old friends. It is hoped that these annual meets will serve to bring the employees of the company into closer touch with each other and establish an esprit de corps among them as well as increase the desire of all employees to learn how to care for injured fellow workmen.

Excursion trains were run from the three main districts, Pleasant Valley and Sunnyside in Utah, and Somerset, in Colorado, and brought large delegations. Altogether about 1500 visitors were present at the event and witnessed the contests. Bountiful and varied refreshments were served to all visitors, and accommodations provided for the convenience of women and children of whom large numbers were present. As the excursion trains rolled in they were greeted by bands of music and salutes of dynamite were exploded on the surrounding cliffs. When all had arrived the delegations marched to the baseball grounds headed by bands and with banners denoting the various teams and towns, and with placards boosting other places for the next meet.

The ball grounds are below the town and in the bottom of the cañon. Instead of the grass-carpeted commons and rolling tree-covered hills of the east it has the yellow clay and the bare, steep and rocky cliffs and sparkling mountain streams of the western mountains, but with the bright colored clothing of the women and the khaki and blue overalls of the contesting miners, the scene presented an equally picturesque panorama. The field for the contests was laid out on the baseball diamond and was surrounded by a rope enclosure, inside of which none but contestants and presiding officials were allowed.

Two rows of nine 12-ft. squares were marked with white paint and covered with brattice cloth. At the back of each row a wire was strung on pipe supports, and pennants having a red cross and the number of each team painted in black on them, were suspended at each square. To insure absolute impartiality in the judgment of events, no company surgeon or officials were allowed to have anything to do with the judging of the contests or allowed inside the enclosure.

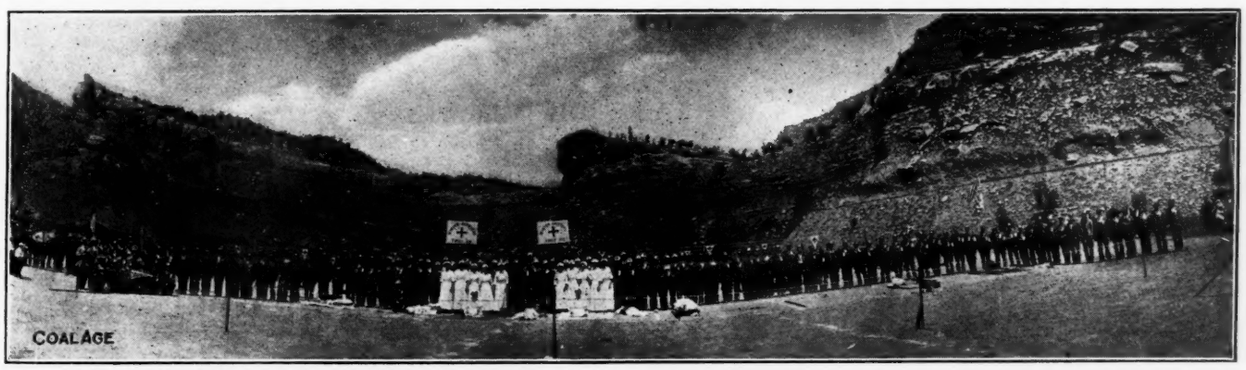
The judges were:

Dr. F. R. Slopkanski, local surgeon for the Denver & Rio Grande R.R. at Helper; Dr. J. Dowd, of the Consolidated Fuel Co., Hiawatha; A. W. Dennison, in charge of the Consolidated Fuel Co. Rescue and First-Aid Work; H. H. Sanderson, superintendent, Consolidated Fuel Co., Hiawatha; J. S. Thompson, mining engineer of the Colorado School of Mines.

The supervising judges were: Roberts and Lanza, of the U. S. Bureau of Mines.

J. C. Snow was chief scorer and his assistants were W. R. Johnson, R. Wilstead, G. Conway, J. A. Thorpe, L. R. Evans and A. Elliott, of whom one was chosen timekeeper.

Eighteen teams, each of six men, competed. One man in each team was selected as patient. Castle Gate mines had 3; Winter Quarters, 5; Clear Creek, 3; Utah Mine, 2; Sunnyside, 3; and Somerset, 2 teams; besides which there were two teams of young women from Winter Quarters, and one team of boys under 17 yr. of age from Clear Creek, who gave exhibitions of exceptional skill, although they did not participate as competing teams. The young ladies will be presented with a silver loving cup.



The Squads in Review at the Castle Gate Contest

PRIZE WINNERS

The first prize for the team having the highest total average in all events was a handsome silver loving cup. The winners of the first prize in the separate events were given handsome gold medals, and the second prize winners pocket knives appropriately engraved.

The first prize belongs temporarily to the winning team, but permanent possession is obtained only by the team winning first place three times. This year the first prize was won by team No. 17 from the Castle Gate No. 2 mine, composed of:

Captain R. J. Henderson, American, machine runner; J. Ramage, American, machine helper; J. Wilson, American, driver boss; A. Wardell, American, driver; J. Lakin, English, coal inspector; J. S. Hreinson, American, machine runner; the total score being 216⅔ points.

The winner of the second prize was team No. 7 from Castle Gate No. 1 mine, composed of:

Captain J. Jones, English, mine foreman; H. Mather, English, rope rider; J. Cowan, American, machine runner; J. Yates, English, hoistman; H. Walker, English, driver; F.

*Chief engineer, Utah Fuel Co., Salt Lake City, Utah.

Levic, Austrian, machine helper; with a total score of 210½ points.

The first prize winner in the one-man event was E. H. Holland, of Sunnyside Team No. 2, and the second was J. Palmer of Sunnyside Team No. 1. The first prize winners in the two-man event were E. Lloyd and H. Stubbs, of Sunnyside Team No. 1. The second prize winners of the same event were V. Autzak and R. Etzell of Winter Quarters Team No. 3.

The first prize winners of the three-man event were J. Haddow, W. Edwards and V. Bain of Utah Mine Team No. 1. The second prize winners of the same event were A. Curtis, A. Michlog and G. Zambelis of Clear Creek Team No. 3. The first prize for the full-team event was won by No. 17 of Castle Gate No. 2 Mine and the second prize for that event by Team No. 7 of Castle Gate No. 1 Mine.

The following problems were given:

1. One-man event—A man is found in bad air, lying on his back, overcome after a gas explosion, with a severe laceration in palm of right hand, bleeding in jets. Rescue by shouldering, and carry 20 ft. to place of safety, treating.

2. Two-man event—A man is found with face and ears badly burnt, a dislocated shoulder and a sprained ankle. Treat and carry 20 ft.

3. Three-man event—A man is found under a fall of rock with a fractured jaw; also with a compound fracture of left leg 8 in. below the knee, with bone protruding on inside of leg—severe arterial bleeding. Treat.

4. Full-team event—A man is struck by a trip in the mine and found lying in the entry on his back, with back broken and simple fracture of both bones of right arm between wrist and elbow. Treat and carry on stretcher 50 ft.

The above problems were chosen by all the judges the night before the contest, and were written and placed in sealed envelopes, there being more than a sufficient number of copies to supply one to the captain of each team. The work of the teams during the contest was governed by the following rules:

SPECIAL RULES FOR CONTEST

1. A team is composed of 6 men, and the patient will be chosen from this number.

2. The teams will be numbered consecutively, beginning at No. 1, and as the captains obtain their number they will occupy their respective positions on the field.

3. The time allowed for each event will be as follows: For one-man event, 8 min.; for two-man event, 10 min.; for three-man event, 12 min.; for full-team event, 15 min.

4. All work of the first-aid teams will be carried on under the rules of the American Red Cross.

5. The judge will prepare his problems and deliver same in a sealed envelope to each captain. The captains will hold same in hand until signal is given by the judge and they will then open the envelopes and read the problems and instruct their teams. Two minutes will be allowed the captain for doing this before signal is given for work to begin.

6. In team events, the captain will control his team by giving audible commands. Such commands, however, must be given **before work is started** and no further instructions will be given while the members are performing their work.

7. At the conclusion of any event the captain will raise his hand and announce his team number. The team will remain at its post until relieved by the judges.

8. Each team will furnish its own material, which will consist of blankets, splints and other suitable articles. The triangular bandages will be the standard, although roller bandages may be used and will receive equal credit.

9. Splints, when needed, must be prepared on the field for each event. Specially designed splints may be used, but they must be assembled during the time of each event requiring their use; except that spinal splints may be prepared prior to the event.

10. In all events requiring resuscitation, rescue of the patient, and stretcher drill, the judges may require the teams to perform separately.

11. The recorders will announce the scores to the judges, and in case of a tie, the teams with the same scores will be compelled to participate in another full-team event. Those receiving the highest scores in this event will be accorded first, second and third places, respectively.

12. The chief, or first prize, consisting of a handsome silver cup, will become the temporary property, for one year, of the camp whose team will make the highest record at this contest, for full-team event, and will become the permanent property of the camp whose team may win highest honors three times.

13. In the event that any boy teams are present, they will be accorded time for an exhibition drill and contest after the regular contest is finished. Boy teams shall be composed of boys under the age of 17. A suitable reward will be given to the boys' team making the highest scores .

WOMEN'S TEAM FROM WINTER QUARTERS, UTAH

BOYS' TEAM FROM CLEAR CREEK, UTAH

14. Each judge will mark the team number, event, and discounts for each team judged, sign his name, and deliver his report to the recorder immediately after each contest.

15. No coaching or prompting from spectators or any member of the team will be permitted, and no practicing will be allowed on the field prior to the contest.

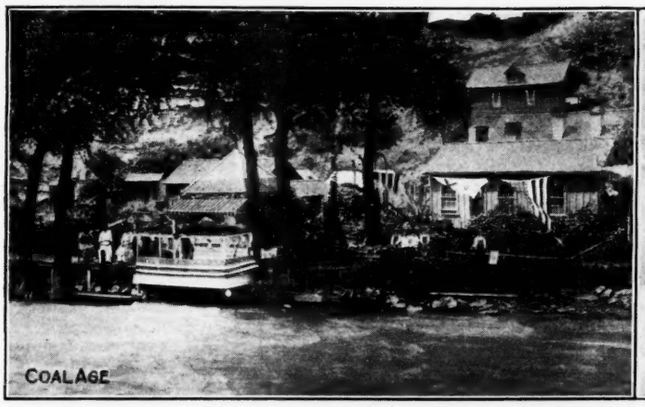
16. The contest will begin promptly at 9:30 a.m. on the baseball field.

17. The judges' scoring rules will be as follows: Each team will be given 100 per cent. to start with, and the following penalties deducted for the offenses noted:

TABLE OF PENALTIES

	Per Cent.
For failure to be aseptic	5
For not doing most important thing first	5
For inaccurate application of tourniquet	5
For lack of, or wrong artificial respiration	5
For failure to stop hemorrhage	5
For failure to treat shock	5
For assistance given by the patient	3
For captain's failure to command properly	2
For slowness in work	2
For failure to cover wound completely	2
For loose splint	2
For not padding splints properly	2
For loose bandage	2
For bandage too tight	2
For using "granny" knots	2
For awkward handling of patient on stretcher	2
For lack of neatness	2

18. The annual contest to be held at the various camps of this company will be decided by fair and impartial judges, and no official of the company will be permitted to take part in such contest or act as judges. Neither will any local physician or expert instructor be allowed to be a member of any team or act in capacity of judge. However, mine



THE DECORATIONS AT CASTLE GATE GROUNDS WHERE THE UTAH FUEL CO. HELD ITS FIRST-AID MEET

FROM LEFT TO RIGHT: CHIEF SCORER SNOW, CHIEF SURGEON F. S. BASCOM AND J. C. ROBERTS

foreman and assistants, and local engineers and assistants, may be members of any team in their district.

On assembling on the field the judges drew lots to ascertain which teams they were to judge first. There being 18 teams and 6 judges, each judge had 3 teams to inspect. The numbers of the three teams allotted to each judge were consecutive so that the judge would not be obliged to run all over the field. Team captains drew numbers corresponding with the position they would take on the field.

There was one scorer for each judge. Each scorer was furnished with a "list of penalties and deductions for same," "scorer's record," pencil and writing tablet. The judges were furnished with "judges score book" and 'list of penalties and deductions for same."

The chief scorer made records of the teams occupying each numbered position, the mine or town they came from, the captains' and men's names, the home numbers of the teams, and also the numbers of the particular teams assigned to each judge, the judges' names and the event to be performed.

As the judges inspected the work they made notes in "Judges' Score Book" of the deductions of each team, and delivered same to the scorers who added up the deductions, calculated the net points for each team, wrote the names of the contestants on the scorer's record, signed their names, sealed the reports in the envelopes marked for the event, and delivered them to the chief scorer.

JUDGES' SCORE BOOK, FIRST EVENT

Team No. —— Deduct for Penalty No. ——	Team No. —— Deduct or Penalty No. ——	Team No. —— Deduct for Penalty No. ——
" " ——	" " ——	" " ——
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At the end of each event the score was marked on another blank as shown in the cut, and was signed by the scorer.

SCORER'S RECORD

CASTLE GATE, UTAH, JULY 24TH, 1914

1st—ONE-MAN EVENT

Score will be one-fifth of Net Amount

Each event will begin with 100 points	Team No. 1			Team No. 2			Team No. 3		
	Deduction for No.	Amt. of deduction	Net Points	Deduction for No.	Amt. of deduction	Net Points	Deduction for No.	Amt. of deduction	Net Points
Deductions for penalties as shown below.									
Total deductions									
Net amount									
One-fifth of net amount makes final score of									

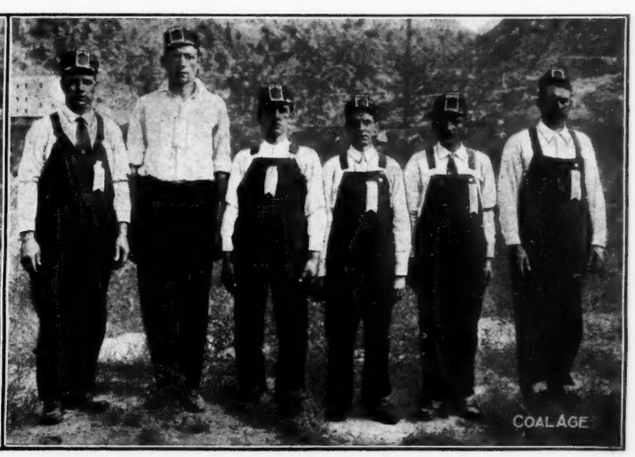
CONTESTANTS

Team No. 1
Team No. 2
Team No. 3

(Signed) .....
Scorer.

After judging three teams for one event the judges passed on to the next three teams (next higher numbers) in line, taking the scorers with them. For each event the same procedure was followed so that no judge could examine the same team twice.

FIRST-PRIZE WINNERS, ALL EVENTS, CASTLE GATE NO. 2 MINE



WINNERS OF SECOND PRIZE, ALL EVENTS, CASTLE GATE NO. 1 MINE

One set of blanks was given for each event.

For the one-man event, ⅛, for the two-man event, ⅝, and for the three-man event ⅞ of the total was taken as the result. For the full-team event 100 minus the deductions was taken as the score. Thus the highest possible figure attainable was 220.

As the events were decided the sealed envelopes were handed to Chief Surgeon F. S. Bascom, State Coal Mine Inspector J. E. Pettit, and Chief Engineer A. C. Watts. The chief surgeon opened the envelopes, called off the score to the chief engineer who recorded them, and then handed them to Mr. Pettit, who verified them. Thus in a few minutes after the last events the results were known. These, however, were not given out until ties for first and second places in the first three events were announced and worked off, and then not until after dinner, which was served in the various halls of the town, and until after the judges had all met and gone over the results.

The problems given for deciding the ties were decided upon by the presiding judges just before work was started and read to the teams upon commencement of the work . They were as follows:

One-Man Event

For second place—Man is found under a fall of rock with both feet badly crushed and bones broken. Treat and carry 20 ft.

Two-Man Event

For first place—Man is found with compound fracture of right forearm 6 in. above wrist, severe bleeding and body burned over chest and stomach. Treat.

Three-Man Event

For second place—Man is found with dislocated left shoulder and a compound fracture of right thigh (intermediate) with severe bleeding. Treat.

The closeness of the contest is shown by the fact that eight teams tied for places in the different events. The total scores varied between 189⅜ and 216⅞.

FUTURE MODIFICATIONS

As this was the first attempt by the company to have a full contest there were, of course, some particulars which may not have been provided for as adequately as they might have been. General Superintendent Williams and other officials are now gathering suggestions as to the manner of handling future events with the idea that little slips made this time can be corrected next. For instance one of the superintendents has suggested that the field of contest be arranged in the form of a V with the wide end facing and close to the grand stand so that relatives and other interested spectators may have a better view of the whole proceedings. The announcements will be made through megaphones. The rules governing the contests will be revised with the assistance of outside experts so that a thoroughly standard set of rules may be formulated, and penalties enlarged. Also future contests may have mine conditions represented so as to create a more realistic scene of operation.

After dinner a closely contested and exciting baseball game between the Somerset and Castle Gate mines was played resulting in a victory for the latter team by a score of 5 to 4 During the game the results of the first-aid contests were announced and prizes awarded by General Superintendent Williams, who acted as chairman for the entire occasion.

Following the baseball game the football teams of Castle Gate and Clear Creek gave a fine exhibition of the favorite British pastime, resulting in a victory for the Castle Gate team by a score of 2 to 0.

The balance of the day until time for the excursion trains to leave was spent in general merrymaking. With fine weather the day was passed very pleasantly, and it is hoped will mark the beginning of a like series which will be looked forward to with eager anticipation.

This article would not be complete or do justice to all if it did not acknowledge the good spirit which has actuated the employees of the company at the various mines. The officials take general pleasure in acknowledging that it was due to a very great extent to the energy, enthusiasm and faithful work of the men of the mines, many of whom made sacrifices in order to help the work, that the first-aid movement has started so auspiciously. In a large measure, the future of the movement will be due to the continuance of the zeal exhibited in the preparation and execution of the first meet.

The Education of Foreign Miners

SPECIAL CORRESPONDENCE

SYNOPSIS—The writer directs attention to the increasing number of foreign miners in Illinois and gives an account of a conference in that state. He details Peter Roberts' system of instruction by which the men are taught verbs first. Ear training precedes that of the eye. Men who do not know foreign languages can teach English to a class consisting of men of all nations.

An increasing number of non-English speaking men are entering the mines in Illinois. Formerly the coal miners spoke English, and were either American by birth or had come to the United States directly from England, Scotland, Ireland, Wales or Germany, where they and their forefathers had been engaged in mining. At present the bulk of the mining is being done by men from southeastern Europe; Slavs, Huns, Poles, Italians, Greeks and Lithuanians. These men when in Europe were mainly agriculturists, and although many of them had no knowledge of mining prior to coming to America, they are frequently put into the mines soon after landing, without preliminary training, and too often before they can speak or understand the English language.

For these men, the Illinois Miners' and Mechanics' Institutes have a special mission, to instruct them in the general principles of mining and in the rules and regulations for safety, and at the same time to increase their knowledge of colloquial English. In order to bring this important subject to the attention of miners, operators, teachers and others whose interest is centered in communities where a large portion of the population is made up of foreigners, the institutes offered, under the auspices of the Summer Session of the University of Illinois, a conference and short course on the education of people speaking foreign languages. This occurred at Urbana, Ill., from July 14 to 17, inclusive.

PROGRAM OF THE CONFERENCE

July 14. 10 to 12 a.m. Conference, R. Y. Williams, director of the Illinois Miners' and Mechanics' Institutes, in charge. "Helping Communities of Foreign-Speaking People." Prof. R. E. Hieronymus, community advisor, University of Illinois; Peter Roberts, secretary, international committee, Y. M. C. A.; John H. Ross, superintendent, Superior Coal Co.; C. H. Johnson, professor of education, University of Illinois; F. E. Held, assistant in German, University of Illinois.

July 14. 1:30 to 4 p.m. Conference. "Teaching English to Foreign-Speaking Men." Demonstration. Peter Roberts.

July 15. 8 to 9 a.m. "Requirements in Teachers Training Foreigners." Peter Roberts.

July 15. 7:30 to 9:30 p.m. Stereopticon lecture on "The Foreigner and His Need," with discussion during the last hour on "How Best to Meet These Needs." Peter Roberts.

July 16. 8 to 9 a.m. "Ethnic Factors in Immigrants to North America." Peter Roberts.

July 16. 4 to 5 p.m. "How to Start Work for Foreigners." Peter Roberts.

July 17. 8 to 9 a.m. "The Foreigner as an Asset to Industrial Communities." Peter Roberts.

CHANGE IN CHARACTER OF MINING COMMUNITIES

According to the census of 1890, less than 10% of

the mining population in Illinois were immigrants from southeastern Europe. During the decade 1890 to 1900 there was a change in the racial composition of the mine workers in Illinois due to the development of two additional sources of labor supply: (1) An influx of mine workers from other coal fields of the United States, (2) the arrival of immigrants from Southern and Eastern Europe. The migration from other fields in this country was made up principally of the English, Scotch, Irish, Welsh and Germans, who left the mines of Pennsylvania and other eastern mining states because of labor disputes and the pressure of races of more recent immigration who were entering the industry in those states. The European races which at the time were securing employment in the Middle West were north and south Italians, Lithuanians, Poles, Russians, French and Franco-Belgians, and a few Magyars.

More than One-Half Were Born Abroad

After the year 1900, the movement of immigrant races of Southern and Eastern Europe into the Middle West steadily continued, and was especially marked during the period 1902 to 1907, on account of the extraordinary development and the opening of new mining districts. During this period a movement of the races of older immigration out of the mines of the Middle West to other mining localities, especially those of Kansas and Oklahoma, under the pressure of the recent arrivals, was also noticeable. In 1910, it was estimated that slightly more than one-half of the total number of employees in the coal mines of Ohio, Indiana and Illinois were of foreign birth, and that almost three-fourths of the foreign-born belonged to races of Southern and Eastern Europe.

The situation at the present, therefore, as regards the racial classification of mining employees, is in strong contrast to that prior to 1900, and it is evident that since that year there has been a constant and increasing influx of races from Southern and Eastern Europe into the mines of Illinois.

An element of danger to those working in the mines is the fact that many of the recent immigrants do not speak English with any degree of fluency or understand it when rapidly spoken, and almost none are able to read or write the language. Because of these facts it is probable that the instructions of those in authority are frequently misunderstood. A mine foreman, for instance, tells an immigrant miner, in English of course, that his roof needs propping. The miner seems to understand, but does not, and in consequence a fall of top may result in injury to the miner. Printed signs used to indicate the presence of gas or other peril, are unintelligible to many of the foreigners.

Roberts' Method of Teaching English

A successful method for teaching English to foreigners has been developed by Peter Roberts, of the International Committee of the Young Men's Christian Association. The main feature of this method is to tell a story in a series of short, pointed sentences arranged in logical sequence so that the general flow of thought will not be broken. In this scheme the verb has been given great prominence, as it is the most difficult element of the language. The sentence is considered as the unit of language, contrary to the usual teaching that the word is the unit.

It is considered that the ear is the organ of language, and therefore the method is applied without the use of text-books, the pupils beginning to talk simple English sentences at once.

A sample lesson is given below—the first lesson in the general course:

Awake	I awake from sleep
Open	I open my eyes
Look	I look for my watch
Find	I find my watch
See	I see what time it is
Is	It is six o'clock
Must get up	I must get up
Throw back	I throw back the bed-clothes
Get out	I get out of bed
Put on	I put on my pants
Put on	I put on my stockings and shoes
Wash	I wash my self
Comb	I comb my hair
Put on	I put on my collar and necktie
Put on	I put on my vest and coat
Open	I open the door of my bedroom
Go down	I go downstairs

The Meaning of the Sentence Is Illustrated by Dumb Show

The instructor first divides the lesson into three sections, as indicated above. He then repeats to the class the verbs in each sentence of the first section, conveying to the men the idea that they are to repeat the words after him. When the class has become familiar with the verbs, the instructor repeats the first sentence, "I awake from sleep," using appropriate gestures to convey the meaning of the sentence to the class.

Several repetitions are sometimes necessary before the men grasp the idea, but finally the men can repeat the sentence themselves, while the teacher simply acts it. The second sentence is then taken up in the same manner; "I open my eyes," and when the men have learned to repeat this without assistance from the instructor, the succeeding sentences are taken up in order, the entire number which have been studied being repeated in order as soon as each one is learned.

The Lesson Chart Is Shown after Words Are Learned

It is found that about half an hour is required for the men to be able to repeat the entire lesson without the aid of the instructor. After this, a large chart containing the printed lesson is placed on the wall, and the instructor reads the first sentence, pointing to each word as he pronounces it. Soon the class understands that the printed characters represent just what they have been learning to say, and they repeat each sentence as the instructor points to it. After the entire lesson has been read over a few times, the instructor begins to skip around the chart, and the men read the sentences as he points to them.

Following the reading lesson, small lesson sheets containing both the printed and the written sentences of the lesson are handed to the men, and they are told that they are to copy the writing. It is found that the men who are able to write in their own language are the first to learn to write the lesson, even though the characters of the alphabet with which they are familiar are entirely different from those they are now learning.

Then the chart is covered up, and the teacher asks "What is the first sentence"? The men clearly do not understand, but when the teacher repeats the question, and then acts the sentence, they grasp the idea quickly enough, and soon the entire lesson is repeated, the in-

structor uncovering each sentence after the men have repeated it correctly.

Following a demonstration by Dr. Roberts with a class of Italians, only one of whom could speak any English, the method was discussed and heartily endorsed by the educators present at the conference.

Illinois Will Follow These Methods

Individual instruction in the method was given to the instructors in the Illinois Miners' and Mechanics' Institutes, in order that when they take up their field work in the fall, they may be able to assist the communities in which they are stationed, in educating the members of the community who cannot speak English. While the classes in mining will prevent these instructors from giving their attention to the work of teaching English to foreigners, yet they will be in a position to assist and advise those who do this work, thus fulfilling one of the objects of the Institutes, "to promote the technical efficiency of all persons working in and about the mines."

It is planned by R. Y. Williams, the director of the institutes, to publish a bulletin containing copies of the lectures given at the conference, with the discussions which followed them. A copy will be sent, on publication, to all persons interested in the work. Requests for the bulletin should be made to the Director of the Illinois Miners' and Mechanics' Institutes, Urbana, Ill.

The Woodward-Pettebone Meet

The Woodward-Pettebone Meet is a meet with the Woodward-Pettebone teams left out and this peculiarity is worthy of explanation. Last year the Woodward and Pettebone first-aid men decided to raise money for the construction of a hall by holding a first-aid meet, and they thought well to keep out of the contest so that there could be no suggestion of unfairness in the management of the field.

Their efforts have been entirely successful. Though most of the competing teams were from Delaware, Lackawanna & Western Coal Department collieries, there were some also from the Raub and the Temple coal companies. It is gratifying to know that despite the liberal prizes offered, the Woodward and Pettebone first-aid men are making these meets most profitable ventures.

On Aug. 15, no less than 21 cars, forming three trains ran over the Lehigh Valley R.R. to the meeting place, Harveys Lake, and carried between 3500 and 4000 people. A great improvement in technique over that exhibited last year was noted by the judges. The events for the men were as follows:

(1) Simple fracture of both collar-bones; punctured wound over left eye, and laceration of right ear. (2) A compound and simple fracture of the upper third of the left thigh and a punctured wound of the left side of the abdomen, about 6 in. above the upper fracture; bleeding from both wounds; also a fracture of the right elbow joint. (3) After an explosion of gas, a man is found unconscious and burned about face, neck, ears, chest and hands.

The boys' teams, of which there were two, did their work at the same time as the teams of men. Apparently, one of these teams was misled by seeing the men dressing a left leg as required and they also dressed that leg, though their own problem called for the right. One team represented the Bethesda church and only one of the teams came from a mine. This team represented the Truesdale Colliery. The boys' events were:

(1) Simple fracture of left collar-bone and laceration of scalp, also laceration of the palm of the right hand. (2) Compound fracture of right leg with bleeding, and two first fingers on left hand crushed.

Following these was a one-man event open to the captains of the teams or to any individuals they might name. This event was the making of a roller-bandage dressing of the left arm and chest.

To avoid ties, it was arranged that the most rapid execution should decide any equalities in rating, the most rapid of two teams whose work was otherwise of equal merit getting the higher award.

Auchincloss Colliery of the D., L. & W., took the first prize of $50, and each member of the team received a Baldwin acetylene lamp. The second prize of $25 went to the Harry E. colliery team of the Temple Coal Co. Two D., L. & W. teams took third place on dead reckoning, Truesdale No. 1 Slope and Truesdale No. 6 Slope, but the first being the more rapid, took third prize of $15 and the second, the fourth prize of $10. A Koehler safety lamp was awarded to the captain of each of the four winning teams.

The Bethesda Church team took the first prize for boys, which was $15. The Truesdale boys received $10. The captains' contest was won by Isidor Hochreiter, of Harry E. col-

The Prize Winners of Auchincloss Colliery of the Delaware, Lackawanna and Western Coal Department

H. G. Davis, General Superintendent, and H. H. Hitchins, Mine Foreman, at D. L. & W. Co.'s Auchincloss Colliery

liery; John Cummings, of the Shawneeites, made an equal rating, but was placed second, owing to his being slower than his opponent. Both received Koehler aluminum safety lamps as prizes.

The standing of the teams was as follows: Auchincloss, 98⅞; Harry E, 98; Truesdale No. 1 Slope, 97⅛; Truesdale No. 6 Slope 97⅛; Pyne 96⅞; Bliss, 96⅛; Shawneeites, 96⅛, Truesdale Tunnel, 96⅛; Storrs, 96; Raub, 95⅛; Avondale, 95; Central 94⅛; Temple Coal Co., 94.

The Bethesda boys' team received 97 points and the Truesdale, 96½. The captains' contest had the following result: Harry E. and Shawneeites, 99. Pyne and Avondale, 98; all others, 97.

The Terre-Haute Meet

The United States Bureau of Mines and the American Mine Safety Association will conduct a national first-aid and mine-rescue meet at Terre Haute, Ind., Sept. 12. The program is under the auspices of the Indiana Bituminous Coal Operators' Association with the coöperation of the United Mine Workers of America, District 11, and the American Red Cross. This is the first meet of its kind ever held west of Pittsburgh and is attracting the interest of the miners and operators of the Central West.

Contests of first-aid and mine-rescue teams and individuals will be held during the morning and afternoon. Individuals trained in the work will have an opportunity to compete in the morning and in the afternoon the teams will compete. All work will be judged by representatives of the American Red Cross, and will consist of treating scalp wounds, broken limbs, lacerations and other work requiring first aid.

Prizes will be awarded winners in the contests and as there will be several prizes, a large number of contestants is expected. The large Bureau of Mines explosion chamber will be brought to Terre Haute and erected for the day and in it mine-rescue work will be demonstrated. During the evening a smoker will be held for all taking part in the meet. Short addresses will be made by J. A. Holmes, director of the Bureau of Mines; J. P. Reese, president of the American Mine Safety Association; Governor Ralston and others.

Many teams have entered the meet through Dr. August F. Knoefel, of Terre Haute, vice-president of the Mine Safety Association. G. F. Powell, superinendent of Car No. 3, of the Bureau of Mines, has trained several teams in mine rescue during his trips through the state and several of these teams are expected to enter. Mr. Powell will be here on the day of the meet with his special car.

British Views on Oil from Coal

SPECIAL CORRESPONDENCE

Considerable interest has been aroused in London regarding the reported plan of the government for acquiring a coal field from which to produce fuel oil for the use of the navy. One of the leading English experts on oil extraction from coal, when interviewed, disclaims any knowledge of such a government plan, but would not dismiss the project as impossible.

While doubtful of any large production of oil from coal on a commercial basis, he pointed out that as a war measure it might be practicable to obtain this fuel for the navy from some Lancashire, North Wales and Scottish coals. He explained that the only coal which can be expected to yield fuel oil on a commercial basis at present, is cannel coal, such as comes from the Irish cannel deposits at Ballycastle, near the Giant's Causeway, to exploit which a company was recently organized.

Apart from this use, cannel coal is at present a drug on the market, and there is no prospect of the deposit mentioned yielding anything like 400,000 tons of fuel oil per year. It might, however, be expected to yield possibly 20,000 tons annually.

If the government could secure a field of coal exceptionally suitable for the production of oil, the quality verging on cannel, it might be worth while acquiring as a war measure. It is doubtful, however, if such a field could be found sufficiently large to yield the quantity required for any considerable number of years. It is improbable that there are extensive fields of absolutely suitable coal in Britain.

A Coal-Field Acquisition Would Be a War Measure

It is not necessary, however, to consider the problem of fuel oil for the navy on a purely commercial basis. It would be a war provision and from that point of view many coal fields might become practicable. Welsh steam coal would be of no value, and ordinary house coal would not be of much use except as a last resort. For instance, ordinary Durham and Midland house coal would be at present out of the question unless a demand for certain byproducts, which does not now exist, could be created.

In Lancashire, on the other hand, there are coals which give a high yield of oil, although they might not be quite commercially practicable at present prices. This region has large deposits verging upon cannel. There are also some suitable measures in North Wales and some in Scotland.

The kind of fuel required for the navy is the heavy mineral oil that is often called "Diesel" oil. It is heavier than kerosene and until recent years has not been in demand. It is of a high flash point, the Admiralty specification requiring a flash point of over 200 deg. Fahrenheit.

To produce 400,000 tons yearly of such fuel, would require 5,500,000 tons of coal annually. The figures of extraction from such coal as may be found in Lancashire are about as follows: Maximum yield of crude oil per ton of coal, 30 gal.; oil suitable for navy fuel per ton of coal, about 15 gal.; 400,000 tons of oil equals 84,000,000 gal., and at 15 gal. per ton, this means 5,600,000 tons of coal.

The total amount of coal at present produced in the kingdom is about 250,400,000 tons. As has been stated, the most suitable deposits are found in Lancashire, Cheshire, North Wales and Scotland. The total production from these sections is as follows: Lancashire and Cheshire, 23,063,198 tons; Scotland, 39,500,000 tons; North Wales, 3,259,000 tons. This gives a total production of 66,000,000 tons of coal per year, from which the Admirality's 5,500,000 might be found.

It may be taken for granted that the Admiralty is closely watching the development of all processes for the extraction of fuel oil from coal.

When quick burning briquets are wanted remember that large briquets are harder to light than small ones; the same is also true of briquets made of fine slack, or of very dense briquets. It is also worth noting that inorganic binders tend to make the briquet slow to fire. Increase of inorganic matter in the slack also gives the same result.

Discussion By Readers

The Ohio Situation

In reading the article entitled "The Labor Situation," COAL AGE, Aug. 8, p. 232, my attention was arrested by the following statement made in relation to the Ohio situation:

> The agreements in other sections being based on the promise that no concession would be made to eastern Ohio operators, the Union, it would appear, should make an equal concession to the other Ohio mine owners, should it permit the eastern Ohio operators to make a more favorable scale, etc.

If I understand the situation and am correctly informed, there was, in the beginning, a more or less distinct understanding on the part of the coal operators, to which the mine officials gave tacit consent, that the run-of-mine law was not to interfere with last year's scale of prices. The present situation would seem to indicate that this tacit agreement has either been lost sight of or is being purposely ignored by the mine officials.

According to the reported statement of Pres. W. R. Woodford, of the Pittsburgh Vein Operators' Association, of Ohio, published in the Wheeling *Intelligencer*, Aug. 7, the miners, in his opinion, were showing too much obstinacy at the present time, and had manifested the same disposition from the beginning of the strike, Apr. 1. It was this feature that made it impossible to reach an agreement with the operators at the recent Wheeling conference. Pres. Woodford is quoted as saying further:

> We have stated to the men and reiterated time and again that the operators of Ohio stand ready to meet the men, at any time, in a conference where a scale that will be the equivalent of last year's contract will be considered. I want to say that the miners of Ohio have earned more under the two years' contract that expired Mar. 31, 1914, than they ever did before in the history of the industry.

I understand that the miners' officials have averaged the percentage of slack made at the mines in the Hocking Valley, Cambridge, and eastern Ohio districts, as 28, 34 and 36 per cent., respectively, making an average in these three districts of $32\frac{2}{3}$ per cent. The last year's screened-coal rate was 69.5c. per ton of screened coal, which was $100 - 32\frac{2}{3} = 67\frac{1}{3}$ per cent. of the total output. To equalize this scale, on the run-of-mine basis, the mine officials figure that the payment should be $0.67\frac{1}{3} \times 69.5 = 47$c. per ton.

However, the injustice of this lies in the fact that the Hocking Valley miners have been reduced 2½c. per ton, while an advance of 2½c. per ton has been placed to the credit of the eastern Ohio miners, which allowances, as far as the operators are concerned, certainly give the Hocking Valley operators an advantage of 5c. per ton over last year's prices.

In closing, permit me to say that if the miners' officials have only been guessing at these figures and are not quite certain as to what the run-of-mine prices in the different districts should be, it would seem proper that they should appoint a scale committee to meet a committee of the operators in an endeavor to arrive at some fair settlement of the matter, instead of adjourning their meeting as hurriedly as was done at the recent Wheeling conference.

COAL OPERATOR.

Eastern Ohio.

An Important Feature of the Coal Industry

I read with deep interest the article by Eli T. Conner, published some time since, COAL AGE, Vol. 5, p. 912. Mr. Conner deserves much credit for the able way in which he has discussed a feature of growing importance in the coal industry. He is thus encouraging the public to think along lines in which they are vitally concerned, and in regard to which his years of experience in the producing end of the coal business enable him to speak with authority.

Mining men acquainted with conditions in the anthracite field of Pennsylvania are reluctantly compelled to admit that the methods of mining coal in that region have not been as carefully guarded, from an economical standpoint of extraction, as should have been the case. While, in a few instances, the percentage recovery of coal per acre has been quite satisfactory, in the large majority of cases wasteful methods have been employed, and considerable areas of coal have been abandoned for deposits that would better meet the requirements of the market and bring quicker returns on the capital invested. Viewed from the standpoint of the conservation of natural resources, the results are, admittedly, a disgrace to scientific mine management.

The burden resulting from these unhappy conditions falls not on the operators, but on the miners and the consuming public. They are the ones who must eventually pay, and are today paying for the economic errors of the industry. Such errors on the part of the management increase the cost of production; and the difference, instead of being deducted from the dividends or proceeds of the business, are either met by a curtailment of operating expense, or reduction in the price paid for mining, or they are added to the selling price of the coal. It is to be regretted that, in the operation of large industries, the question of maintaining dividends receives greater consideration than that of paying living wages to the miner and selling the output at living prices to the consumer.

The statement made by the late George F. Baer, and referred to by Mr. Conner, draws attention to a natural law laid down by Anderson, Malthus, Ricardo, Smith and other writers on political economy, which is to the effect that:

> The price of the entire supply of anything necessary for a community will be regulated by the cost of production of that portion of the necessary supply which is produced at the greatest expense.

This law is true today, because of the strong competition in the sales departments of the several coal companies operating in the anthracite field.

It must be remembered that the laws of economics are quite as fundamental and inexorable as the laws of science. Sir Isaac Newton would have freely admitted that the apple would not fall to ground if he had the power and the inclination to bind it fast to the tree. In like manner, any political economist, from Malthus down to the latter-day Mills, would be compelled to admit that *the price of the entire supply of anything necessary for a community is regulated by those that have the power and inclination to fix the price.* Suppose for a moment the selling price of anthracite coal, the wages paid the miner and the dividends declared were in the hands and controlled by a quasi judicial board, it is fair to assume that, with careful management in the operating end of the industry, a more equitable distribution of the returns would be possible; and capital, mine workers and the consuming public would be better served.

We may ask what does Mr. Conner mean to imply by quoting this statement in this connection. The logical conclusion to be drawn is that the price of anthracite will continue to rise, owing to these conditions, until controlled by some adjudicating power. Mr. Conner's suggestion is that the industry as a whole should be directed by a board of trustees or commissioners; and he says he makes this suggestion with a view to provoking discussion of the subject. In addition to the duties outlined by Mr. Conner for the guidance of such a commission, may I be permitted to suggest that they should prescribe the manner and the amount of taxes to be paid on all coal mined.

I would like to ask Mr. Conner if there is any reason why the commission he suggested should not be appointed, and whether or not the action recently taken by the government has in any sense divorced the railroad companies from their coal-mining interests? Surely, if the police powers of the state and nation can be invoked to regulate labor, the same powers should be available to regulate the transactions of capital. It would seem that this, and this alone, can effectually regulate and control the conflicting interests in the several mining districts of the country, so as to conserve the coal, and harmonize general labor and market conditions to the best advantage. Who can suggest a method by which these results can be effectively attained?

PROGRESSIVE.

Bluefield, W. Va.

Conservation of Surface Values in the Extraction of Coal

Referring to the letter on this subject, COAL AGE, Aug. 15, p. 277, I want to endorse what Mr. Parfitt has said in regard to the growing need of the adoption of means and methods, in the mining of coal, that will afford more general support to the overlying surface, much of which has a more far-reaching value than the mineral lying below.

Both coal and surface are valuable assets of present-day civilization and each must be so regarded. The principle of conservation does not apply to one of these assets more strongly than to the other. There can be no economy in sacrificing the value of surface holdings, in order to realize a temporary income from the mineral that underlies the same. The mining engineers of large coal companies must devise and put into execution more stable methods of mining coal.

A MINING ENGINEER.

Scranton, Penn.

The Coal Miner

I was glad to note the references made by Mr. Hanger, COAL AGE, Aug. 15, p. 278, to the proper treatment of miners by their foreman with a view to maintaining discipline in the mine. While Mr. Hanger emphasizes the need of certain punishment for any violation of the mining law or mine regulations on the part of the men, he states plainly that "In no case should a personal indignity be inflicted" by the use of epithets that only give rise to resentment.

In view of the many hardships and dangers that are the daily experiences of miners, a foreman should exercise the greatest thoughtfulness and kindness in dealing with their eccentricities. The public owe much to these men, many of whom have devoted their lives to the mining of one of the greatest necessities of civilization. Perhaps the majority of miners can look forward to *one* of two forms of death—being killed in the mine, or succumbing finally to that dread disease, miner's asthma.

It is these considerations that should command for the miner the highest regard in respect to his surroundings and necessities. The fact should not be forgotten or overlooked that his family and home are just as dear to him as to other men. He is as anxious to do well by those who look to him for support as is the foreman or superintendent, or others holding better and more lucrative positions. Enforced idleness, due to an accident in the mine or other cause, or such drawbacks and hindrances as the thinning out of the coal or a heavy fall of roof in his chamber greatly impair the miner's income, and call for due consideration on the part of the foreman in dealing with such conditions. The thoughtful word and kind treatment of a foreman go far to alleviate the troubles that fall to the lot of the miner.

There have been instances where the complaint of the miner that the roof in his chamber is "bad," has brought the harsh and thoughtless reply from the foreman, "You are no better to be killed than any other man." The request by a miner for a "better place," that he may increase his earnings to meet special expenses for which he is in no way responsible and therefore could not avoid, has, in many cases, called forth a curt and profane reply.

Such treatment of a miner by his foreman can only arouse ill feeling and enmity in the mind of the man who is compelled to work under difficult conditions. The ill feeling is due more to the fact that the miner realizes that his foreman has no sympathy for him in the matter, but regards him simply as a human machine. As a result, the foreman is often charged with favoritism. It is needless to say that such treatment on the part of the foreman produces very poor returns when there is urgent demand for coal, and it is necessary that every man do his best to increase the daily output of coal. The treatment the miner receives from his foreman does not encourage him to give other than the same in return. As a result, there is great lack of coöperation in the mine, and discipline is at a low ebb.

THOMAS R. PIERCE.

Scranton, Penn.

Permissible Electric Mine Lamps

Referring to the inquiry relating to schedule No. 6, recently sent out by the Federal Bureau of Mines, making certain suggestions in reference to the details of construction of electric mine lamps, COAL AGE, Aug. 15, p. 280, we believe it would only have been fair to the Bureau of Mines, as well as to others interested in the subject, had the name of the correspondent been attached to the inquiry. The reason for this is, to us, most obvious.

As indicated in the editorial comment following this inquiry, these suggestions may have been necessitated by the requirements, in the proper testing of the lamps submitted to the Bureau. The subject of electric safety lamps is a new one in this country, and we consider that extensive experiments will be required before standard methods can be adopted for testing, and standard instructions issued in regard to the use of such lamps.

We consider that the Bureau of Mines has been fair throughout, particularly so as regards the manufacturers who have submitted their products for tests to the Bureau. In every case, the engineers of the Bureau have spared no pains to give all the assistance in their power, to render the tests satisfactory and efficient. For these reasons, we consider correspondent's inquiry as unfair to the Bureau of Mines, as well as to other interested parties, and think that his name should not have been withheld, but should have appeared with the publication.

X.

——, Penn.

[As is well known, the Discussion department of COAL AGE is open to the frank and honest criticisms of all readers of the paper, and the discussion of any points and methods that are of practical interest. The purpose is to draw attention to matters, in regard to which an interchange of views and opinions will be helpful and of advantage. It is particularly desirable that personality shall be eliminated, and the writer of the contribution has the right to request that his name be withheld from publication, which request is invariably respected.

In the present case it is quite obvious that all manufacturers of electric mine lamps should appear incognito, in the discussion of a question that is of common interest to all, and which it is the province of the Bureau of Mines, as adjudicator, to decide. The publication of a name to such a contribution would appear, in some cases, as a bid for favor, while, in other cases, the criticism would unjustly prejudice the Bureau and render an impartial consideration, on their part, difficult.—ED.]

Study Course in Coal Mining

BY J. T. BEARD

The Coal Age Pocket Book

The following tables give the average specific gravities of most solids and liquids of importance in coal mining. The important mine gases are tabulated elsewhere.

Comparison of Standards—Hydrogen, air and water are the three standards commonly used in the determination of the specific gravity of gases, liquids and solids. The relative densities of these standards are as follows:

Air (dry) is 14.418 times as heavy as hydrogen, at the same temperature and pressure, volume for volume.

Water (max. density, 4° C.) is 773 times as heavy as dry air at 32 deg. F., bar. 29.92 in.; and 815 times as heavy as dry air at 60 deg. F., bar. 30 in., volume for volume.

SPECIFIC GRAVITIES AND UNIT WEIGHTS OF SOLIDS AND LIQUIDS

Substance	Average sp. gravity (Water = 1)	Average weight (Lb. per cu.ft.)
Alcohol, pure	0.793	49.5
commercial	0.834	52.1
Aluminum	2.66	166.
Asphalt (1 to 1.8)	1.4	87.
Brass, cast (7.8 to 8.4)	8.1	506.
rolled	8.4	525.
Brick, pressed	2.4	150.
common, hard	2.	125.
Brickwork, masonry (1.8 to 2.3)	....	110 to 140.
Bronze (8.7 to 8.9)	8.8	550.
Clay (1.8 to 2.6)	2.2	137.5
Coal, anthracite (1.3 to 1.7)	1.5	93.75
bituminous (1.2 to 1.5)	1.3	81.25
cannel, gas coal (1.18 to 1.28)	1.23	76.88
lignite, brown coal	1.1	68.75
Coke, loose piled	....	20 to 25.
Concrete	2.3	144.
Copper, cast (8.6 to 8.8)	8.7	543.
rolled (8.8 to 9)	8.9	556.
Earth, dry, loose to well rammed	....	76 to 95.
moist, loose to well rammed	....	78 to 96.
wet, flowing mud	....	105 to 115.
Granite (2.56 to 2.88)	2.72	170.
Gold, cast (18.29 to 19.37)	18.83	1176.
Gravel, loose	....	95 to 100.
Gypsum, ground or calcined, loose	....	56.
well shaken	....	64.
Ice	0.92	57.5
Iron, cast (6.9 to 7.4)	7.2	450.
rolled	7.68	480.
wrought, sheet (7.6 to 7.9)	7.8	485.
Lead (11.3 to 11.47)	11.38	710.
Lime (quicklime)	1.5	93.75
ground, loose (66 lb. per bus.)	....	53.
Limestone	2.7	168.
Marble (2.5 to 2.8)	2.65	165.
Mercury (32 deg. F.)	13.593	850.
(62 deg. F.)	13.555	847.

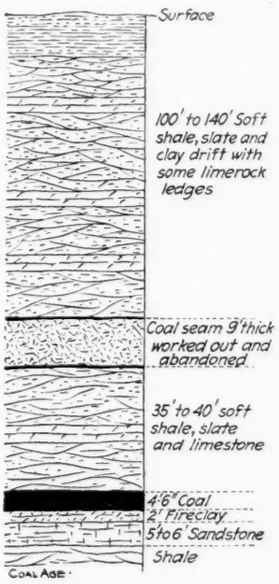
The Coal Age Pocket Book

Oils (0.910 to 0.975)—weight given in lb. per gal.		
Animal—lard	0.916	7.64
sperm (pure)	0.880	7.34
whale	0.925	7.72
Vegetable—cottonseed	0.923	7.70
linseed (raw)	0.933	7.79
(boiled)	0.780	6.51
olive	0.917	7.65
rape (colza)	0.915	7.63
Mineral—petroleum (crude)	0.77-1.06	....
gasoline	0.700	5.84
kerosene (coal oil)	0.800	6.68
naphtha	0.730	6.09
Pitch	1.155	72.
Platinum	21.6	1348.
Rosin	1.1	68.67
Sand, dry	....	100.
wet	....	130.
Sandstone (2.1 to 2.7)	2.4	150.
Shale (2.4 to 2.8)	2.6	162.
Silver	10.5	655.
Slate (2.7 to 2.9)	2.7	169.
Steel (7.8 to 7.9)	7.85	490.
Sulphur	2.	125.
Tallow	0.94	58.7
Tar	1.	62.5
Tin, cast (7.2 to 7.5)	7.35	459.
Traprock	3.	187.
Water (max. density, 4° C.)	1.	62.428
(pure, 62° F.)	0.999	62.366
(pure, 212° F.)	0.958	59.806
sea, average	1.028	64.176
Wood, dry, seasoned—		
Ash, white		38
Birch		41
Cedar, white		23
red		35
Cherry		42
Chestnut		41
Elm		35
Ebony		76
Hemlock		25
Hickory		53
Mahogany, Spanish		53
Honduras		35
Maple		49
Oak, live		59
white		48
black, jack, etc.		35 to 45
Pine, white		25
yellow, Northern		34
Southern		45
Poplar (cottonwood)		33
Spruce		25
Sycamore		37
Walnut		37

Inquiries of General Interest

Method of Working Underlying Coal Seam

I am interested in the problem of working a seam of coal 4½ ft. in thickness and lying from 35 to 40 ft. below another seam 9 ft. in thickness, which has been worked out and abandoned. I submit the accompanying vertical section showing approximately the geological features of the strata.


Surface
100' to 140' Soft shale, slate and clay drift with some limerock ledges
Coal seam 9' thick worked out and abandoned
35' to 40' soft shale, slate and limestone
4'6" Coal
2' Fireclay
5 to 6' Sandstone
Shale
COAL AGE

A Vertical Geological Section

As here shown, the seam of coal it is proposed to work is 4 ft. 6 in. thick, and underlaid with about 2 ft. of fire clay, beneath which is from 5 to 6 ft. of sandstone, again underlaid with the usual shale formation. Above this coal and between it and the 9-ft. seam that has been worked out and abandoned, the strata consist of from 35 to 40 ft. of soft shale and slate, interstratified with an occasional ledge of limestone, varying from 1 to 3 ft. in thickness. Above the 9-ft. seam there are from 100 to 140 ft. of soft shale, slate and clay, with occasional ledges of limerock.

The 9-ft. seam of coal was worked on the advancing room-and-pillar system, with the result that a large number of surface caves took place. From the nature of the strata forming the roof of the underlying seam, the same trouble may be expected in mining that coal. Indeed, owing to the increased depth of the seam and the liability of the pillars still remaining in the upper seam breaking through into the lower workings, the trouble will probably be experienced to a greater degree than in the mining of the upper seam. In this strata, a heavy fall of roof in the mine generally causes a break that reaches to the surface, and these breaks are of frequent occurrence. The same feature, however, eliminates the danger of a squeeze or creep occurring in the mine, which is a thing practically unknown.

It has seemed to me that the most practicable method of working this lower seam is to drive the entries to the boundary, and then work out the coal on the room-and-pillar retreating system, drawing all pillars as quickly as the rooms are finished. It is understood, of course, that ample provision must be made for drainage in every portion of the workings.

It should be stated that, unfortunately, no reliable survey and plan of the workings in the upper seam have been preserved or are available, and it would be impracticable to assume that the pillars in the lower seam can be kept vertically under those in the upper seam, the most of which have probably been removed. The greater portion of the mining in the upper seam was performed many years ago, when it was not considered necessary to mine the coal in any regular fashion or to survey and map the workings in an accurate manner. I believe this condition is not an uncommon one in many mining districts, and that its discussion will prove of interest to many readers who are mining coal under similar conditions. I hope, therefore, that this inquiry will bring forth many valuable suggestions.

G. E. Lyman, Mining Engineer,
Madison Coal Corporation.

Glen Carbon, Ill.

As subjects for discussion, the methods of working coal seams under varying conditions have proved most interesting. The methods and plans suggested have come from practical men who have worked out their details as the conditions in the mine required. Many of these methods are the results of long years of experience, coupled with a knowledge of mining principles that make them of great practical value. Many readers of Coal Age have profited by these suggestions, and much coal has been recovered that would otherwise have been lost for lack of a proper method or plan.

The case suggested by this correspondent represents, as he says, no uncommon occurrence in coal-mining fields. In response to his request, Coal Age will be glad to give space to a full discussion of the difficulties presented by these conditions, and the best method of overcoming them.

Problem in Algebra

Kindly solve the following, which is Problem No. 10, p. 270, of Wentworth's Higher Algebra:

"A," in running a race with "B," to a post and back, met him 10 yd. from the post. To make it a dead heat, B would have to increase his rate $47^3/_7$ yd. per min. But, if without changing his pace B had turned back on meeting A, he would have reached the starting point 4 sec. later than A. What is the distance from the starting point to the post?

Lincoln Place, Penn. Student.

Solution—Let r = B's rate (yd. per min.); $r + 47^3/_7$ = A's rate. Calling the required distance to the post, x, A travels $x + 10$, while B goes $x - 10$. These distances being proportional to the rate,

$$\frac{x + 10}{x - 10} = \frac{r + 47\frac{3}{7}}{r}$$

which reduces to

$$83x - 35r = 830 \qquad (1)$$

The 4 sec. ($^1/_{15}$ min.) B is behind A, at the finish, represents a distance $r/_{15}$ yd., to gain which required $r/_{15} \div 47^3/_7 = 7r/_{4980}$ min. In that time A has gone $x - 10$ yd; hence

$$x - 10 = \frac{7r}{4980}(r + 47\tfrac{3}{7}) \qquad (2)$$

Combining equations 1 and 2, gives finally for the required distance to the post, $x = 116^{42}/_{83}$ yd.

Examination Questions

Miscellaneous Questions

(*Answered by Request*)

Ques.—What is ascensional ventilation? State also the advantages and disadvantages of its use.

Ans.—In mining, the system known as ascensional ventilation is that in which the air enters the mine workings at the lowest point and from thence circulates to the rise, in its passage throughout the mine. In this system the downcast or intake communicates directly with the lowest part of the dip workings, while the upcast is located at the highest point of the rise workings.

The great advantage of ascensional ventilation in mining is derived from the fact that the intake air is usually cooler than the mine air. On passing into the mine, it shortly becomes heated and rises naturally to the higher levels, by virtue of its decreased density due to the increase in its temperature. Where a mine is properly arranged, there is no disadvantage in the use of ascensional ventilation, except it may be for a short time in the summer season when the outside air entering the mine has a higher temperature than that in the mine and conditions of ventilation are consequently reversed.

Ques.—Does a high velocity of the air current assist in producing an explosion, in a wet mine?

Ans.—A high velocity of the air current, by which is meant a greater velocity than what is required to properly ventilate the workings of the mine, is always favorable to the development and propagation of a mine explosion, this being true in either a dry or a wet mine. In a dry mine, a higher velocity of the air current means a larger quantity of dust carried in the air, greatly increasing the explosive conditions of the mine air. In either a wet or a dry mine, a higher velocity of the air current means a larger supply of oxygen per minute, which increases, to that extent, the possibility of the inflammation of gas or dust. In coal mining, the best ventilation is secured where the quantity of air supplied at the face of the workings is only sufficient for the complete removal of the gases generated in the mine, and where the velocity of the air current is sufficient for this purpose, but not such as to increase explosive conditions in the mine either from an excessive supply of oxygen or from the suspension of dust carried in the air current.

Ques.—Is there any danger in the installation and use of a gasoline motor in a mine?

Ans.—A gasoline motor is not an ideal motor for use in a coal mine. Under certain possible conditions, common to mining practice, the discharge from such a motor rapidly vitiates the mine air. Aside from this, the handling of a highly explosive oil, as gasoline, is always a dangerous factor in a mine, owing to the liability to fire or explosion. Notwithstanding these possible dangers, there are a number of gasoline motors employed for various purposes in coal mines throughout the country. The danger of their use is greatly increased by the possibility of a mine wreck when the gasoline tank might be injured and its contents take fire.

Ques.—In a mine subject to fires caused by spontaneous combustion, what is the first evidence of the existence of such a fire; and what steps should be taken to overcome the trouble?

Ans.—An experienced miner will detect the presence of a fire in the waste or abandoned workings, by the peculiar odor perceptible in the air current and which would escape the notice of one less familiar with coal-mining conditions. The presence of mine fires is also indicated by the heating of the walls inclosing the space where the fire is in progress. As time progresses and the fire gains strength, smoke and gases are produced in abundance.

The treatment of mine fires depends so largely on conditions that it is impracticable to outline a method of procedure that would be applicable in all cases. In the early stages of a gob fire, the burning material can frequently be removed and carried out of the mine. While such a fire may often be extinguished by water, the later heating of the waste material in the gob is greatly accelerated by the presence of the moisture and the trouble thereby increased.

Where it is possible to isolate the fire by building stoppings to prevent the entrance of air to that portion of the workings, the fire can often be smothered and extinguished by such means. In some cases, carbon dioxide (CO_2) has been injected into the inclosed area with good effect. Where a mine fire has gained considerable headway, and these remedies fail, recourse must be had to drowning the fire out by flooding the mine with water.

Ques.—Mention the particular characteristics of coal, in respect to chemical composition and texture, that render it more liable to cause an explosion, in the processes of mining.

Ans.—The bituminous and lignite coals containing from 30 to 40 per cent. of volatile matter are the most inflammable. When the texture of these coals is such as to produce a fine impalpable dust that is readily thrown into suspension in the air, there is the greatest liability to explosion in mines. Briefly stated, the liability to explosion depends chiefly on the inflammability of the dust and the fineness of the floating particles.

Ques.—State the advantages and disadvantages of large slow-running fans, as compared with small high-speed fans, in the ventilation of a mine.

Ans.—A large slow-running fan possesses a greater margin of expansion; or, in other words, possesses a wider range of capacity than a small high-speed fan designed for the same conditions. If an emergency arises in the mine calling for a large increase of air, the large slow-running fan is more capable of producing such increase than is the case with a small fan that is already running at a high speed in performing its normal work.

The chief advantage in a small high-speed fan is the reduction in the first cost or the cost of installation, owing to lighter foundations being required and a less weight of material being used in the construction of the fan wheel and its housing.

Coal and Coke News

Washington, D. C.

Advices brought to the Federal administration from competent sources are to the effect that, up to date, in spite of the dislocation of affairs caused by the development of war conditions, there has been but little effect on the revenues of railroads in consequence of the disturbance.

Thus, for example, in the case of the Chesapeake & Ohio Ry., it is stated that the earnings of the concern have not been at all affected by the war, but that coal loadings during a recent week since the opening of the war assumed record proportions, while those of the period just before and just after this exceptionally prosperous week were likewise very satisfactory. Other coal roads report similar conditions, notwithstanding that at some mines there has been a shortage of hands for operation, owing to the circumstance that many of the former operatives have been leaving this country in order to participate on one side or the other in warlike operations in Europe.

To some extent, it is stated here, the places of these men will be taken by operatives who have not heretofore been fully employed or who have been employed on part time and whose work has consequently not been a maximum. It is also believed that a certain number of men will be attracted back into mining from other occupations in which it is found that the war situation necessitates a reduction of running time or in other particulars limits the quantity of the output that can be furnished to the market. Some of these men are former miners who have been withdrawn by the more favorable opportunities in other lines of activity.

It also appears that immigration of laborers from nations which have heretofore furnished a considerable number of practical miners is likewise being resumed so that there will be some influx of European laborers that will offset the shortage caused by the withdrawal of those who have gone abroad to perform military service.

Plans for Coal Exportation

The action of the administration in urging upon Congress a war risk insurance measure, which has just passed the Senate, and a bill authorizing the President to purchase a large number of ships for the purpose of creating the nucleus of a steamship line, has been confessedly taken in part for the purpose of maintaining and facilitating our export of fuel, which, along with foodstuffs, constitutes conditional contraband under a good many circumstances.

It is stated by the administration representatives that there is every reason to suppose that much coal can be sold in South America, and that, assuming the new government line to be established as proposed, it will be the endeavor of those in charge to make exceptionally favorable rates to American coal presented for exportation to the Isthmus of Panama and to countries south of the canal.

None of these countries will be able to import coal from Europe, and it is supposed they will turn to the United States. Special attempt is being made to facilitate the financing of South American business generally, and the understanding now is that a substantial degree of success has been attained in making these arrangements. It is asserted at the Department of Commerce that particular inquiries are already being made in South America concerning the details of conditions surrounding the sale and shipment of consignments of fuel.

There is every reason to suppose that the war risk insurance bill will be adopted, thereby eliminating the probability of losses due to the seizure of fuel which is in process of transit from the United States to foreign buyers. More resistance is being offered to the passage of the ship purchase bill, but that also is believed likely to become law in some form before a great while. With the improving outlook as to foreign exchange, this is expected to relieve the export situation materially.

Many Bills Have Been Introduced

During the past week, there have been introduced or acted upon in Congress a number of bills affecting mining products and coal particularly in one way or another. One which has received some attention is represented by Representative Deitrick, forbidding the exportation of mining products, and reading, in part, as follows:

That it shall be unlawful for any person, firm, association or corporation to export any goods, wares, merchandise or products of the soil or mines; provided, however, that the President of these United States may from time to time permit the exportation of such articles and in such quantities as in his judgment the general welfare of the country will permit.

Sect. 2. That any person, firm, association or corporation, and any agent, director or officer who is found guilty of violating any of the provisions of this act shall be punished by a fine not exceeding $10,000 and by imprisonment for a period of not less than one year nor more than five years.

Sect. 3. That all cases arising under the provisions of this act shall take precedence of all other cases in the courts having jurisdiction thereof, and the President is hereby authorized to appoint such additional judges and all necessary court officers to secure the prompt trial and determination thereof, both in the courts of original jurisdiction and in any other court.

Sect. 4. That this act shall take effect upon passage.

An important measure relating to the disposal of coal and mineral deposits in Indian lands has just been passed by the Senate in the following terms:

That where the coal or other minerals contained in any lands embraced in any Indian reservation which has been opened to settlement and entry, have been reserved from disposition, the reservation of such coal and other minerals shall inure to the benefit of the Indian tribe or tribes to whom such Indian reservation belonged, and all proceeds arising from the disposal of such coal or mineral deposits as may be determined by law shall be deposited in the Treasury of the United States and shall be applied in the same manner as the proceeds derived from the disposal of the lands contained in the reservation within which such coal or mineral deposits are located.

The Senate has also passed an act providing for the purchase and equipment of a mine-rescue car to operate in the Southwestern coal fields especially. The bill for this purpose contains the following provision:

That the Secretary of the Interior is hereby authorized and directed to purchase and equip a mine-rescue car for advancing mine safety work in the Southwestern coal fields, with headquarters at Fort Smith, Ark.; and there is hereby authorized to be appropriated for the purchase and equipment of such car the sum of $10,000, and for the operation and maintenance of said car during the fiscal year 1915 the sum of $16,500.

The Senate has also passed and sent to the House of Representatives an important act intended to amend the act extending the homestead laws of the United States, and providing for right-of-way for railroads in Alaska. This amendatory act refers primarily to agricultural land, but has a direct bearing upon the coal situation in Alaska as seen in the change made in that part of the law which fixes the price of the land to be homesteaded, but exempts mineral and coal lands. Sect. 10 of the amended law, which is the provision bearing on this subject, reads as follows:

That any citizen of the United States, 21 years of age, or any association of such citizens, or any corporation incorporated under the laws of the United States or of any state or territory, now authorized by law to hold lands in the territories, hereafter in the possession of and occupying public lands in the District of Alaska in good faith for the purposes of trade, manufacture or other productive industry, may each purchase one claim only not exceeding 80 acres of such land for any one person, association or corporation, at $2.50 per acre, upon submission of proof that said area embraces improvements of the claimant and is needed in the prosecution of such trade, manufacture or other productive industry, such tract of land not to include mineral or coal lands, and ingress and egress shall be reserved to the public on the waters of all streams, whether navigable or otherwise.

PENNSYLVANIA

Anthracite

Bellevue—A fire on Aug. 19, in the Diamond vein of the Von Storch colliery of the Delaware & Hudson Co., shut off 15 workmen from the slope entrance and they had to go several miles in a roundabout way to escape. The city fire department extinguished the blaze.

Pittston—Fearing that a mine cave may occur at any moment, a portion of upper Williams St. was roped off on Aug. 20, and traffic on the street near the Erie R.R. crossing is barred. The spot where the cave is expected is guarded with a fence around it. Passengers on the trolley lines are transferred to cars at another point. The company officials expected the cave to occur at any time. It is believed that several properties will also be seriously affected by the cave.

Harleigh—A fire of mysterious origin totally consumed the boiler house of the Harleigh-Brookwood Coal Co. on Aug. 15, but the breaker, which is located nearby, was saved. The blaze, which started shortly before midnight, originated in the pump room in the extreme eastern end of the building. Two of the boilers next to the pump house were not in use at the time, and as only electric lights were used in the building, the management is at a loss as to account for the origin of the fire. Arrangements have been made for immediate repairs, so that work at the colliery can be resumed at an early date. The fire did not interfere with the pumps in the mines, as they are operated by electricity.

Sunbury—Judge Moser, in the Northumberland county courts, on Aug. 17, filed an opinion refusing to materially lower the assessments on 15,000 acres of coal lands, the taxable value of which has been fixed at $17,369,841 by the board of county commissioners for the three years ending with 1915. The rate for the previous three years had been but $7,674,212, which makes the increase approximately $9,000,000. Because of the ruling, increase in taxes to the county will be $120,000 for the three years. After the commissioners raised the valuation to that fixed by Judge Moser, the Philadelphia & Reading Coal & Iron Co, the Mineral R.R. & Mining Co., the Lehigh Valley Coal Co., owners of the bulk of the land, took appeals, and an exhaustive inquiry was made.

Bituminous

Punxsutawney—The Buffalo, Rochester & Pittsburgh R.R., which has been making heavy shipments of coal into Canada since the outbreak of the European war, must hereafter ship no coal to the Dominion except in Grand Trunk Ry. cars. This is a result of the government's neutrality embargo, and will bring the coal shipments of this road to Canada to about 100 cars a day, whereas it has been shipping in the last few weeks from 500 to 1000 cars a day.

Johnstown—W. M. Brown, superintendent, and two mine foreman, Thomas Townsend and J. C. Patterson, of the Miller shaft of the Shoemaker Coal Mining Co., have been held for court on charges of violating the state mining laws. The informations were preferred by State Mine Inspector Thomas D. Williams. Brown is alleged to have failed and refused to instruct his foremen to provide safe and available passageways from the mainway to the interior of the mine workings. The foremen are charged with failing and refusing to provide the animal and mechanical haulage roads in the mines with holes for shelter, 4 ft. deep, at intervals of at least 15 ft.

Bentleyville—The West Penn Lighting Co. has secured the contract for furnishing power to several mines being opened on the line of the Montour railroad. These are at McDonald, Bishop, Thompsonville and Hills, and the Henderson Coal Co.'s new mines at McPherson Mills. Three miles of line will be constructed to the last named mine, where current for 1100 hp. will be supplied. The West Penn company recently secured the contract for furnishing power for the Pittsburgh-Buffalo Co.'s Hazel mine, at Cannonsburg.

Somerset—Somerset County is the scene of great activity along electrical lines. The Penn Electric Service Co., which has absorbed a number of smaller concerns in Somerset and adjoining counties during the past several years, is bending its energies toward the completion of high-tension transmission lines. The lines will carry current for light and power on a large circuit, which will include many of the principal towns and coal companies of the county. It is expected that the Somerset loop will be completed by fall. The route is from Johnstown to the new mining town at Cairnbrook and several other little mining towns. Other towns will be connected next year. These will probably include the mining towns of Rockwood, Garrett, Meyersdale and Salisbury.

Colver—The Colver drift is now averaging between 3500 and 3800 tons of coal per day, the rated capacity being 4000 tons. More rolling stock and other new equipment is being purchased, and this will probably bring the output up to its full capacity. Reports have been circulated concerning the opening of a new mine, but these are unconfirmed.

Wehrum—Four hundred miners will be temporarily out of employment as the result of a fire at the plant of the Lackawanna Coal & Coke Co.

WEST VIRGINIA

Charleston—Announcements have been made by the Department of Mines that examinations for mine foremen and firebosses will be held at Welch, Sept. 15 and 16; at Logan, Sept. 23 and 24; at Mt. Hope, Sept. 29 and 30; at Charleston, Oct. 6 and 7, and at Grafton on Oct. 13 and 14.

Accident returns for the month of July showed that, despite the fact that some of the miners of West Virginia are still risking their lives by violation of state mining laws and the rules of the company, the number of fatalities is decreasing. As in previous months, many miners who violated rules, lost their lives thereby. Thirty-three men were killed in the state during July, as against 41 for the month of June.

Fayette—For the purpose of raising funds with which to install new electrical machinery, the Lynchburg Colliery Co. and the Deity Colliery Co., on Gauley, have given deeds of trust on the property to H. A. Robson, of Charleston, and C. L. Christian, of Lynchburg, trustees, to secure a loan of $65,000. Of this sum, $30,000 is for the Lynchburg operation and $35,000 for the Deity company. The installation of the new electrical equipment will make the mines the best equipped properties on Gauley.

ALABAMA

Birmingham—Henry L. Jackson, administrator of the estate of Claude N. Jackson, has filed suit against the Brilliant Coal Co. for $50,000 damages for the death of the latter, who was recently killed while in the employ of the above company. This is one of the largest suits ever filed in this district for the death of an individual.

Edgewater—The Tennessee Coal, Iron & R.R. Co. has just appropriated $5000 for improvements to its bath house. This bath house is acknowledged to be one of the most modern and complete in the United States, and the above appropriation is for enlargement.

TENNESSEE

Coalfield—The Coalfield Coal Co., employing about 50 men, has closed down its mines for a period of 90 days on account of an utter lack of orders. The mines have been running on short time for several months, but this is the first time in years that they have been shut down altogether.

Vasper—The Vasper Coal Mining Co., organized some time ago, it is stated, has begun to open mines on its holdings of 1000 acres. Plans for machinery have not yet been decided upon. C. P. Harley is president and T. C. Jacks, secretary and manager.

KENTUCKY

Barbourville—Coal-mine operators in this section are confronted with a labor shortage, numbers of Hungarian and Austrian laborers having departed for the coast with the intention of sailing for home, provided they can get passage, to report for service in the armies. Mines are running to capacity hereabouts and a big increase is expected if the war in Europe is to be prolonged.

Lexington—Coal traffic over the Louisville & Nashville R.R. will be greatly expedited by the belt line which the Louisville & Nashville has just completed. The line connects the Lexington & Eastern branch with the Cincinnati and Louisville lines, and will not only save mileage, but will obviate the necessity of switching coal trains about in the city yards. The line, with the right of way, involved an expenditure of about $40,000.

OHIO

Bailey's Mills—The Dixler & Ohio Coal Co. and the Coalburg Co. have signed an agreement with the men employed b ythem under which the 47c. scale demanded by the union will be allowed. Preparations are under way for the resumption of work at the two mines, which employ about 250 men.

Massillon—The Massillon Coal Mining Co., the largest producer in the Massillon district, has placed three of its mines in operation. It is also announced that three new shafts will be operated late in the fall. Over 1500 men will be employed.

Logan—The first shipment of coal made by the Coonville mines of the Starr-Hocking Co., since the mines went into the hands of a receiver, was recently made. The financial affairs of the company are being adjusted, and it is the prevalent feeling that better times are ahead.

Columbus—Application has been made before the Ohio Utilities Commission for permission to waive the collection of demurrage charges and the suspension of car service rules on fine coal. This was done because of the lack of demand for the small sizes.

All of the sales agents and district managers for the New York Coal Co. made an inspection trip of the mines of the company in the Hocking Valley and the washery, Aug. 22. They were under the charge of C. W. Thompson, secretary, and J. A. Teegardin, sales manager. It is the plan of the company to apportion the output of the washery among the various salesmen.

Congo—State Mine Inspector J. M. Roan, assisted by a number of deputies, opened the Congo mine of the Sunday Creek Co., last week. The mine caught fire several months

ago, and was at that time sealed up under the direction of the mine department. It was found that the fire had burned itself out, and the mine will be placed in condition to operate.

INDIANA

Terre Haute—A trust deed given by the Grant Coal Mining Co., of Chicago, to the Drovers National Bank in that city, for $125,000, has been recorded here. It is for 6 per cent. gold bonds, payable $5000 May 1, 1915, and $20,000 annually thereafter.

The Jackson Hill Co. is sinking a new mine northwest of this city. A switch is being laid to the Miami Coal Co.'s new mine in the same territory. The court decided against those property owners who held that their land could not be condemned for railroad right-of-way for a mine switch only, and not for regular railway traffic.

It has been decided not to merge the miners of the bituminous and block fields of Indiana.

Clinton—The Miami Coal Co. has changed its headquarters from Brazil to this city.

ILLINOIS

Springfield—It is estimated by Duncan MacDonald, secretary-treasurer of the United Mine Workers, that 10,000 miners are out of work in the state. There appears to be no great prospect for decided betterment in the industry, and many of the workmen are crowding into other lines of labor and are not waiting for the fall work to commence.

Carlinville—The injunction suit of the Carlinville Coal Co. against the Ohio Oil Co. has been adjusted at the cost of the defendant. The Oil company stipulated that it will do no more drilling in this vicinity, and practically none on any portion of the complainant's coal field.

Pana—A small but troublesome fire recently broke out in the casing of the Penwell coal mine shaft, and for a time promised to give a hard fight. The city fire department, however, got it under control in about half an hour.

Cambria—The entire top works of the Donnelly-Koenecke Coal Co. was recently destroyed by fire, with no insurance. The loss on the rescreening plant and on the other property will amount to between $40,000 and $50,000. This property went into the hands of a receiver last winter, W. O. Potter, of Marion, being appointed to take charge of the property, which has been idle since that time.

Johnston City—The Lake Creek mine, near here, owned by New York parties affiliatd with the Cotton Belt R.R., and the output of which for the past year or so has been taken entirely by that railroad, is now equipped to ship commercial coal.

COLORADO

Denver—In a suit filed in the United States District Court, the government charging that the estate of Allen M. Ghost is holding 836 acres of coal land in Las Animas County illegally obtained in 1901 by Ghost and associates. This land is now considered to be worth over one million dollars, and the government asks that the patents be cancelled.

FOREIGN NEWS

London, England—It is stated that in spite of the removal of the embargo on exports of coal, the business is almost at a standstill, owing to the high freight rates. Sellers are demanding at least partial cash payment.

News comes from Bern, Switzerland, that notwithstanding the assurances that Germany is provided with plenty of coal, it is known that women are being put to work in the collieries of the Rhenish provinces.

PUBLICATIONS RECEIVED

University of Illinois, Illinois Miners and Mechanic's Institutes, Circular No. 1. "Education of Foreign Miners." Six pages, 6x9 in., illustrated.

University of Illinois, Illinois Miners' and Mechanics' Institutes, Bulletin No. 1. "Education of Mine Employees," by H. H. Stoek. One hundred and thirty six pages 6x9 in. with many tables and illustrations.

TRADE CATALOGS

National Transit Co., Oil City, Penn. Bulletins Nos. 10 and 11. Pumping machinery. Illustrated, 6x9 in.

Chain Belt Co., Milwaukee, Wis. Catalog No. 54. "Chabelco" steel chain belt. Illustrated, 32 pp., 7x10 in.

American Concentrator Co., Springfield, Ohio. Bulletin No. 2. Coal and ore testing laboratory. Illustrated, 4 pp., 6x9 in.

The Cement-Gun Co., Inc., of New York, "The Cement Gun." One hundred and seven pages, 6x9 in., illustrating and describing the apparatus, process and product.

The Allison Coupon Co., Indianapolis, Ind. "Allison Coupon Books," 64 pages, 8x10½ in., illustrating and describing coupon books and their uses.

Chicago Pneumatic Tool Co., Chicago, Ill. Bulletin No. 34-N. Class N steam and power driven enclosed compressors. Illustrated, 16 pp., 6x9 in.

Alberger Pump & Condenser Co., 140 Cedar St., New York. Catalog E. Alberger centrifugal pumps, Alberger-Curtis steam turbines. Illustrated, 56 pp., 6x9 in.

Chicago Pneumatic Tool Co., Fisher Building, Chicago, Ill. Bulletin No. 34-W. Class A-O "Giant" fuel oil engines. Illustrated, 16 pp., 6x9 in.

Yarnall-Waring Co., Philadelphia, Penn. Catalog. "The Log Book of the Power Plant." Lea V-notch recording liquid meter. Illustrated, 88 pp., 6x9 in.

The Automatic Reclosing Circuit Breaker Co., Columbus, Ohio. "Automatic Circuit Controllers.' Twelve pages, 3½x6 in., illustrating and describing automatic circuit controllers as applied to mining.

The Harris Air Pump Co., Indianapolis, Ind. "Twentieth Century Pneumatic Pumping Systems," 22 pages, 6x9 in., with many illustrations and tables on the installation, operation, and results or air lifts.

The Standard Roller Bearing Co., Philadelphia, Penn. "What Our Twelve Years' Experience Means to the User of Annular Ball Bearings." Twenty-eight pages, 7x10 in., with many illustrations and tables.

The Marion Steam Shovel Co., Marion, Ohio. Catalog 91. "Stripping Coal with Economy and Speed," 40 pages, 5x7 in., showing the use of Marion steam shovels, in coal stripping throughout different regions of the United States.

Sullivan Machinery Co., 122 S. Michigan Ave., Chicago, Ill. Bulletin No. 66B. "Sullivan rock drill mountings and accessories." Illustrated, 36 pp., 6x9 in. Booklet No. 13. "Core Drilling by Contract." Illustrated, 32 pp., 3½x5½ in.

The Creamer Lamp & Engineering Co., Ltd., Leeds, Eng., in Coöperation with the American Safety Lamp and Mine Supply Co., 1321-1333 Capouse Ave., Scranton, Penn. "Miners' Safety Lamps." Forty pages, 8x11 in., illustrating safety lamps, accessories, cleaning machines, etc.

The Jeffrey Mfg. Co., Columbus, Ohio. Bulletin No. 129. "Arcwall Coal Cutters for Over Cutting System of Mining." Eight pages, 8x10 in., illustrating and describing the application of "Arcwall" machines which require no loading or unloading and will cut in any slate or clay band in the coal measure

PERSONALS

H. P. Dowler, formerly superintendent of the coal operation at Hellwood, Penn., is contemplating starting in coal mining for himself.

Michael Hartneady, sheriff of Carbon County, Penn., was recently re-elected president of the United Mine Workers of the Panther Creek Valley.

J. H. Bovard, president of the Northwestern Coal Co. and general manager of the Farmers' Coal Co., at Kansas City, is at business again after four weeks in a hospital for an operation. He is recuperating rapidly.

W. J. Richards, president of the Philadelphia & Reading Coal & Iron Co., recently visited Boston and inspected the various re-handling plants of his company. He was accompanied by R. J. Montgomery, general coal agent.

Thomas R. Keating, assistant mine foreman at No. 4 shaft of the Ewen colliery, Pennsylvania Coal Co., has severed his connection with the company to accept a position as general superintendent with the Mohawk Coal Co., of Carbondale.

John Conlon, mine foreman for the Delaware & Hudson Coal Co. in Plains Township, has started the erection of a new breaker to conduct secondary mining operations in that township. The old Union slope is the section to be mined, it being stated that large quantities of coal still remain in the operation, which was abandoned years ago before more improved methods of mining were practiced.

CONSTRUCTION NEWS

Kittanning, Penn.—The Queenstown Coal Co., which has been engaged for some time in opening its mine in Brady's Bend Township, is now about ready to begin the shipment of coal.

Bentleyville, Penn.—It is expected that the Montour R.R. will have trains running over its new line by Sept. 15. The road is about completed and what construction work remains to be done can be finished in about a month.

Blairsville, Penn.—A contract has been awarded by the Pennsylvania R.R. Co. for the construction of a three and a half mile single-track extension of the Homer & Cherry Tree branch, to tap some new coal lands in Indiana County.

Winchester, Ky.—The Winchester-Irvine extension of the Louisville & Nashville R.R. has been completed from here to Red River, a distance of 14 miles. Construction work has progressed rapidly on the other side of the river, between there and Irvine, and it is expected that steel will be laid into Irvine shortly. There is about a month's work on the Red River bridge. This branch will open up a rich coal territory.

Henderson, Ky.—Officers of the Deepwater Coal Co., with engineers, are examining sites in Henderson and across the Ohio River, in Evansville, for the projected manufacturing plant of the Ohio & Mississippi Valley Barge Co. This latter firm, it is alleged, is to construct barges, to convey the coal of the Deepwater company from the mines in Kentucky, to the Gulf of Mexico. Surveys of the river front are being made.

NEW INCORPORATIONS

Tuscumbia, Ala.—The Southern Mining & Milling Co. has been incorporated with a capital stock of $100,000.

Birmingham, Ala.—The Margaret Coal & Sales Co. has been incorporated, with a capital stock of $2000. Charles DeBardeleben is named as president, W. W. Fulghum secretary-treasurer, and W. C. Adams, sales manager.

Charleston, W. Va.—The Jackson Coal Co. has been incorporated with a capital stock of $5000, which will probably later on be increased to possibly $600,000. The incorporators are F. J. Harry, H. W. DePue, J. S. Scott, L. S. Echols and Mrs. L. S. Echols.

Charleston, W. Va.—The Superior Block Coal Co., of Beckley, has been organized with a capital of $65,000. This firm will operate in the Duvall district of Lincoln County. The incorporators are G. C. Helrick, B. J. Shumate, John Anderson, G. H. Spalding and John Morris, all of Beckley, W. Va.

INDUSTRIAL NEWS

Pittsburgh, Penn.—Ernest Borra and Joe Barline, miners, of Bridgeville, on Aug. 21, pleaded guilty in Criminal Court to a charge of violating mining laws, in that they tamped shots with coal dust instead of clay. Sentence was suspended on payment of costs.

Peoria, Ill.—Judge Leslie D. Puterbaugh has been appointed receiver for the Horace Clark & Sons Co., mine operators. The application for the receiver was made by the Philadelphia & Reading Ry. Liabilities are listed at $330,000, with assets estimated at $650,000.

Pittsburgh, Penn.—I. W. Seamans has brought suit against J. A. Hillman & Sons Co. to recover $162,750 alleged to be due because a tract of coal sold to Seamans shows to be 70 acres short of 240 acres, the number he supposed he was getting, and which was all mineable.

San Francisco, Cal.—The tramp steamer "Mazatlan," which has flown variously the Mexican and German flags, was forbidden, Aug. 20, to leave port until she discharged 500 tons of coal in sacks, which it is alleged was intended to be transferred to the German cruiser "Leipsic," at sea.

Chicago, Ill.—Officials of the Illinois Central R.R. are making a tour of the United States and Canada, with the hope of finding a solution for the problem of storing bituminous coal. The company is seeking a method of storage to prevent deterioration and the danger from spontaneous combustion, also excessive costs in handling.

Venice, Italy—It is stated that all kinds of trades, steamships and railways in Italy are suffering from a shortage of coal. Nearly all the fuel used in Italy comes from England, and although the British Government has given permission for coal to be sent, English shippers have not complied, probably feeling that the Italians cannot pay cash.

Columbus, Ohio—The Ohio Utilities Commission has granted the request of the Hocking-Sunday Creek Traction Co. to issue $300,000 twenty-year bonds for the purpose of building and equipping the line from Chauncey to Athens. The line will then be opened between Nelsonville and Athens. It is planned to extend the line to Lancaster along the canal bank.

Cincinnati, Ohio—Orders have been placed by the receivers for the Cincinnati, Hamilton & Dayton R.R. Co. for 35 new locomotives to be used in hauling freight trains. The equipment of the company is in bad shape, and these locomotives will be used to bolster it up. Of the order, 30 are of the large Mikado type, and the remainder are smaller engines.

New York, N. Y.—The bituminous coal export market received a decided impetus Aug. 22, with the announcement that the Spanish interests at Madrid had made contracts for the delivery in Argentine and Uruguay of 3,800,000 tons of steam coal to be delivered over a period of two years at Buenos Aires, Montevideo and Rosario, and as rapidly as vessels can be procured to carry it.

Cincinnati, Ohio—The receivers of the Cincinnati, Hamilton & Dayton R.R. have ordered from the Mt. Vernon Car Co., 1000 box cars, and have also placed an order with the Cambria Steel Co. for 1000 gondola cars. It is understood, however, that these orders are made conditional upon the successful completion of arrangements for financing the road early this fall.

New York, N. Y.—Coal exporters only recently began to take advantage of the war to send fuel to Europe by way of the Mediterranean ports. On Aug. 19, the "Sweden," a neutral vessel, cleared with 6800 tons of coal. It is believed that more boats from neutral countries will be received here and the end of the war will probably find that the United States has a large export trade of coal to the Mediterranean countries.

Bluefield, W. Va.—The Norfolk & Western's official statement of coal carried during the month of July, 1914, is as follows: Pocahontas field, 1,314,478 net tons; Tug River, 263,240; Thacker, 288,643; Kenova, 100,600; Clinch Valley, 140,751. Other Norfolk & Western territory, 2735 net tons. From the Williamson and Pond Creek roads, 90,819 tons, and from all other railroads, 301,796 tons, making a grand total of 2,503,062 tons. This is 33,445 tons less than was shipped during the corresponding month of 1913.

Kansas City, Mo.—The Boycourt Coal Co. was the subject of involuntary bankrupt proceedings in the federal court at Kansas City, Aug. 20, the petitioners being Samuel Feller, the Baker & Lockwood Tent & Awning Co. and the Richards & Conover Hardware Co. The allegation is made that the State Bank of Ottawa, Kan., acquired $22,000 of stock of the company, under an agreement to pay the company's obligations, receiving a mortgage on the mines, and paid $6000 of the debts.

Washington, D. C.—The report of the Department of Mines, recently made public, states that 180 men were killed in and about the coal mines of the United States during the month of June, as compared with 192 during the same month of 1913. The number of fatalities in the coal fields of Pennsylvania was: Anthracite, 43; bituminous, 34. During the six months ending June 30, 1914, 288 men were killed in the anthracite region and 206 met death in the bituminous field. During the corresponding month of 1913, 336 men were killed in the hard coal field, and exactly the same number in the bituminous field of the state.

Coal Trade Reviews

General Review

Heavy all-rail shipments in anthracite and business is moderately active already. Eastern bituminous situation still improving. Orders and shipments for foreign markets are being reported. Trade slowly expanding and will be active shortly. Lake shipping better.

The anthracite trade is characterized by an unusually early buying movement that has created an excellent undertone and placed the market in a strong position. This is still confined mostly to the interior points, which continue absorbing unexpectedly heavy tonnages; naturally this has eliminated the possibility of any accumulation at Tidewater, which has also participated in the general improvement. The better demand has resulted in an increased working schedule at nearly all collieries, which is most unusual this early in the season.

The bituminous situation at Tidewater is still distinctly mixed and no definite developments of any kind have occurred. In spite of many reports to the contrary, there is no doubt that substantial tonnages of new business have been negotiated as a result of the European war, but it is equally true that this has caused a stoppage in other channels. As a rule the markets are not quotably changed, although rumors of substantial premiums are heard on export business. An interesting development of the week in the export trade was the clearing of a cargo from Hampton Roads for Stockholm, the first shipment ever made to that point. It is also a significant fact that the Hampton Roads piers worked last Sunday for the first time in a year. There is feeling that the domestic market is gradually broadening and a firm situation is anticipated in the very near future.

The exhaustion of consumers' stocks has forced additional buying and created a slightly better situation in the Pittsburgh district; prices continue irregular. Canadian buying is slowing down somewhat in all lines except the railroads which appear to be taking on extra supplies; rumors are current that much of this coal will eventually find its way into the British navy, but this is emphatically denied in official circles.

Though the effects of the general slowing up as a result of the war are being felt in the Ohio fields, the improvement in the Lake trade has steadied the market up in good shape. The Lake movement is now at the maximum of the year. Some local buying is being done, and operations in the mining districts are being accelerated.

The Southern trade is feeling the effects of the adverse conditions prevailing in cotton so that the market is irregular at the moment, though the outlook is bright. Heavy sales of pig iron indicate a strengthening in the industrial situation; and prices are showing a rising tendency. Middle-Western operators are firm in their convictions of a stronger market shortly, in spite of the interruptions incident to the war. The improvement is particularly noticeable in the domestic grades, the steam market showing a weakening tendency. Business so far is about normal for this period of the year.

ATLANTIC SEABOARD

BOSTON

Hampton Roads market steadily strengthening. Consignees are taking supplies freely. Pennsylvania grades develop an active business and Georges Creek shippers are well supplied with orders. Water freights hold recent gains. Anthracite fall prospect excellent.

Bituminous—The situation of Pocahontas and New River shows steady improvement. Prices are firm and the market is strengthening. Rumors are heard of what might be called "fancy prices" for export, but so far, confirmation is lacking. There can be no question, however, that the market will broaden materially during September. The Norfolk piers worked all day last Sunday, the first time in more than a year, due to the large number of steamers awaiting berth.

In New England, cargoes at the distributing points are being more freely absorbed; so far as reported, the on-car prices established a few weeks ago still prevail, and the trade is generally in a healthy state. Arrivals are heavier, the corporations apparently taking on coal as fast as storage will permit. The upward trend in water freights has also somewhat accelerated the demand from smaller buyers, but no real spot market for cargo lots has developed as yet.

The more popular grades from Pennsylvania are showing a spurt. Orders are beginning to accumulate with most of the operators, a pleasant contrast with conditions a month or two ago. Prices are hardening, although no pronounced movement has so far been in evidence. Some of the foreign ports that have hitherto shipped exclusively from England are likely to learn something of the merits of coals from the Pennsylvania districts as well as those from West Virginia. The lower-priced grades are also improving in demand.

There is no change to report in the Georges Creek situation. The shippers are well supplied with orders and the movement to New England is regular and in fair volume.

Water Freights are holding to the quotations of a week ago and owners still decline to name rates more than a few days in advance. All kinds of tonnage are in good request and the transportation interests are optimistic over the outlook.

Anthracite—The European war and the higher prices on other commodities have started the retail demand much earlier than usual. This is apparently true all over New England, although it is hard to foresee any upset in anthracite that can possibly result from the war. Stove size is in notably short supply with a number of the shippers, and certain of the steam sizes are also shortening up. The prospect is excellent for fall business.

Quotations on bituminous at wholesale are about as follows:

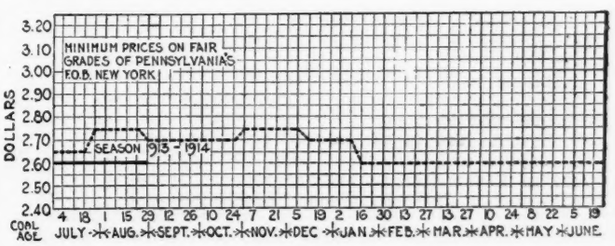
	Clearfields	Cambrias Somersets	Georges Creek	Pocahontas New River
Mines*	$0.90@1.50	$1.25@1.70	$1.67@1.77	
Philadelphia*	2.15@2.75	2.50@2.95	2.92@3.02	
New York*	2.45@3.05	2.80@3.25	3.22@3.32	
Baltimore*	.....	.....	2.85@2.95	
Hampton Roads*	.....	.....	.....	$2.85@2.95
Boston†	.....	.....	.....	3.68@3.83
Providence†	.....	.....	.....	3.60@3.68

* F.o.b. †On cars.

NEW YORK

Bituminous shows a better tone. Estimated that 350,000 tons of new business has been closed since the war began. Mines working better. Anthracite trade opening up in excellent shape. Prices stiffer.

The Bituminous situation shows a slight improvement over that prevailing a week ago. The spot demand appears to be a little better and in some cases prices for prompt delivery are five cents per ton higher. The greatest stagnation is in bunker coal and that has improved so far as tramp steamers is concerned, although not yet normal by any means. The delivery to foreign ports is also below normal, though the situation appears to be clearing steadily. So far there seems to have been about 350,000 tons of new business booked for foreign shipment and steamers are commencing to report for loading.


MINIMUM PRICES ON FAIR GRADES OF PENNSYLVANIA'S F.O.B. NEW YORK
SEASON 1913-1914
DOLLARS
3.20
3.10
3.00
2.90
2.80
2.70
2.60
2.50
2.40
4 18 1 15 29 12 26 10 24 7 21 5 19 2 16 30 13 27 13 27 10 24 8 22 5 19
COAL AGE
JULY AUG. SEPT. OCT. NOV. DEC JAN. FEB. MAR. APR. MAY JUNE

Many inquiries are in the market for future shipment both for foreign and local delivery. As a rule shippers are inclined to look askance upon this class of business, confining their sales to prompt shipment, although at the same time some considerable tonnage has been closed on contract during the last week or two at usual figures.

Mines in most instances are working better, many of them nearly full as against half time in July. Others are

not doing so well, having a class of business which has been effected adversely through the war situation. Labor is still plentiful and cars in good supply with the exception of one or two r ads, that are filled up with loaded cars.

The outlook is good and shippers are still hopeful of seeing a very heavy demand at better prices within the near future. The market is quotable as follows: West Virginia steam, $2.50@2.60; fair grades Pennsylvania, $2.55@2.65; good grades of Pennsylvania, $2.70@2.80; best Miller Pennsylvania, $3.10@3.15; Georges Creek, $3.15@3.25.

In Anthracite the market continues to show an improved tone. At present the demand is good, particularly on the line, for all sizes, and mines are working full time without any trouble in moving the product. Stove is still the active size and the supply is not equal to the demand; it is the means of moving some of the other sizes that have accumulated at the piers during the recent dull period.

Small sizes are moving well, the better grades being actually short in several instances. Prices vary according to quality, but in no case does there seem to be any accumulation.

Quotations are now as follows:

	Upper Ports		Lower Ports	
	Circular	Individual	Circular	Individual
Broken	$5.00	$4.60@5.00	$4.95	$4.55@4.95
Egg	5.25	5.15@5.25	5.20	5.00@5.20
Stove	5.25	5.25	5.20	5.20
Chestnut	5.50	5.30@5.50	5.45	5.25@5.45
Pea	3.55	3.45@3.55	3.50	3.25@3.50
Buckwheat	2.80	2.75@2.80	2.50@2.75	2.15@2.75
Rice	2.30	2.25@2.30	2.00@2.25	1.70@2.25
Barley	1.80	1.75@1.80	1.75	1.30@1.75

BALTIMORE

Less coal on sidings following resumption of heavy bunker trade. Sales at the mines slow and prices continue flat. Anthracite conditions listless.

There is a decided improvement as regards the amount of coal awheel here and on demurrage. A big grain fleet has been moving out of Baltimore for the past week, and with it went a large quantity of coal in bunkers. This has proved a distinct aid to the local situation, and there is now little talk of sacrificing at tide.

Mine conditions are slow. Poor demand toward the Lakes, a general industrial flatness, including almost a complete suspension in much of the cement trade and the steel business, stand as the underlying causes. Three-quarter gas is selling in West Virginia around 90c.; slack is freely offered to the trade at the mines at 50 and 55c. Steam coals are a little better, calling for from 95c. to $1. Best grade Pennsylvania coals hold firm around $1.35, but there has been sacrificing of small lots; a sale on the latter basis of a well known high-grade coal was noted this week at $1.15. Poorer grades are selling at from $1 to $1.10.

The Export trade remains an almost negligible quantity. After a few shipments a week ago, there was a decided lull. Foreign purchasers, mostly through London connections, are making cable inquiries, but the fact that no cash exchange has been arranged for this side is apparently holding up a business that will probably develop a little later.

Anthracite dealers generally are complaining of dull times. Few deliveries of any consequence are being made. The trade is living in hopes that September will bring a change of conditions.

Coastwise Chartering is light, most of the movement being in company-owned colliers or on long-time charters. Free offerings to New England ports have established a low rate in that direction. Offerings for Southern hauls are rather scarce and rates are higher in proportion. The approach of the hurricane season is showing its influence there.

HAMPTON ROADS

Large shipments, foreign and coastwise, and inquries are still coming in. Government takes 12,000 tons. Prices remain at circular.

Shipments, both foreign and coastwise, are good. The number of bunker vessels has not been large, but under the existing war conditions, bunker loadings show up fair.

Inquiries are in the market for large quantities of coal for export, and bids have also been asked for supplying 3000 to 12,000 tons of bunker coal to United States transports now at Newport News. The inquiries for export coal are coming from both European and South American ports usually supplied with Welsh coal, and already sales have been made and shipments moved. It is difficult to ascertain at what prices the export coal is being sold, but it is not believed quotations have been over $2.85, though perhaps some may have been made at $2.90.

There is a little above the normal supply of coal at Tidewater, with a fair amount coming forward from the mines, and, unless the demand should greatly increase, there is no prospect of a shortage during the next few weeks.

Export shipments during the week have been made to St. Lucia, Port Antonio, Port of Spain, Havana, Kingston, Rio de Janeiro, Santos, Stockholm, Las Palmas, Aalesund and Toulon. Stockholm, Aalesund, Las Palmas and Toulon buy almost all of their coal from the Welsh market; Rio de Janeiro and Santos also buy Welsh coal, but Atlantic coast ports supply some coal to these and other Brazilian ports. It is said that the coal sent to Stockholm was the first cargo of coal to be shipped from Hampton Roads to that port, and that its sale was due to inability of buyers to get a supply from Wales.

COAL CHARTERS

The demand for tonnage to carry coal to South America and Mediterranean countries continues active and rates have eased up. A charter made early this week for coal carriage, September loading, from Virginia to Rio Janeiro was closed at $5.40 against $6 being paid for the same voyage last week. Quite a few boats have been fixed to carry coal to Las Palmas and Italian ports and chartering agents report that they expect the demand for tonnage in this trade to continue for some time after the conclusion of the war in view of the fact that the English Admiralty has commandeered most of the coal stored by the Welsh operators, and that mining operations have been seriously hampered by the calling to arms of miners. American coal operators state that New River, Pocahontas and other high-grade coals have been sold in large quantities for early shipments. Spain, Portugal and Egypt have sent in large buying orders as well as Italy and South American countries.

It is stated that freight and insurance rates on coal vessels had eased up considerably, but that the English moratorium was to some extent holding up the final consummation of many contracts. It is the general practice to make all bills for coal shipped to foreign ports payable in London and for this reason operators are insisting that shippers have bills payable in New York on the surrender of the proper documents. To a certain extent where coal is urgently needed this has been done, but the recent improvement in the foreign exchange situation and the general attitude taken that exchange will shortly assume a normal aspect lends color to the statement that large sales of coal to Europe and South America will soon start under the usual terms of sale with bills payable in London.—"Journal of Commerce."

Coal charters have been reported as follows:

Vessel	Nationality	From	To	Tons	Rate
Navisbrook[2]	British	Atlantic Range	Bahia	1965	$6.00
Egda[3]	Norwegian	Baltimore	Puerto Barrios	1610	
Kennebec[2]	.....	Baltimore	Boston	1913	
Van Allens Boughton[1]	.....	Philadelphia	Boston	1909	
Kelbergen[3]	Dutch	Norfolk	Rio Janeiro	2674	6.36
Josephine[1]	.....	Philadelphia	Halifax	842	1.74
Chehaw[3]	.....	Port Reading	Savannah	982	1.10
Hugin[2]	Norwegian	Baltimore	Havana	1174	
J. E. Bignon[1]	.....	Philadelphia	Savannah	468	
Rob Roy[1]	.....	Philadelphia	Charleston	684	
Romera[2]	British	Virginia	Rio Janeiro	3189	
Jethou[2]	Norwegian	Norfolk	Mediterranean	2781	5.40

[1] Schooner [2] Steamer [3] Barge

LAKE MARKETS

LAKE TRADE

The business has had its ups and downs in past years, but it has never before received such a variegated assortment of rebuffs as this season. It opened lamely enough, but hope burned brightly. Everybody believed that things would get better in about a month and vessel owners did not lose hope, but merely postponed their expectations, arguing that the furnacemen could not stay out of the market forever.

But now comes a staggering conflict of armed forces abroad and the export trade goes glimmering. Vessel charters are cancelled; grain is loaded into vessels and then unloaded at the loading port; other vessels leave and are recalled, and still others that deliver their cargoes cannot get their freight money. Meanwhile the elevators fill up and there is stagnation and delay all around. Time is being eaten up and the ships are not earning anything, and altogether a state of demoralization prevails, of which no one can see the end. Vessels are going to dock by scores, because there is nothing for them to do. The year 1914 will be long remembered on the Lakes as the worst on record.—"The Marine Review."

PITTSBURGH

Mining continues at about 70% of capacity. Manufacturing demand slightly better. Circular prices still purely nominal, but slack a shade firmer.

The local coal situation has shown very little change for

several weeks, but such as has occurred has been in the direction of improvement. The demand from manufacturers is, on the whole, measurably heavier than two or three weeks ago, due partly to the practical exhaustion of the last of the stocks laid in against the expected suspension last April, and in part to slightly heavier operations at mills and factories. The steel trade is running at a slightly better rate than in July, an increase in shipments to domestic consumers having more than made up for the sharp decrease in exports caused by the war.

Shipments in the Lake trade have improved slightly, but they are not at as great a rate as was expected would be the case a month ago. Production of coal in the Pittsburgh district is at approximately 70% of capacity, on an average, but some mines are operating almost full and others are running at less than 50%.

Prices continue to be very irregular, slack suffering a greater discount from list than any other description, although it is slightly firmer than a fortnight ago, at 55@60c. for steam-coal slack and 65@70c. for gas-coal slack. Mine-run can be had on desirable contracts at $1.15, while spot lots can sometimes be had at close to a dollar a ton. Regular circular prices, which are purely nominal, remain as follows: Slack, 90c.; nut and slack, $1.05; nut, $1.25; mine-run, $1.30; ¾-in., $1.40; 1¼-in., $1.50, per ton at mine, Pittsburgh district.

BUFFALO

Canadian roads stocking heavily in anticipation of treaty complications cutting off the supply. Other lines slowing down and requirements light. Unusually large amount of early buying in anthracite.

Bituminous—The demand is still below normal, owing to the European war. Canadian factories in numerous instances are doing little, and there is not much prospect of immediate resumption of business there, as everyone is taking a great interest in the war, and many lines of trade are upset. Sellers are looking closely after collections, which as a whole are said to be poorer than usual in the Dominion.

The heaviest buyers in Canada today are the railroads, and they are stocking up more freely than usual. The movement across the International Bridge has lately been above normal, the bulk of the coal being for railroad use. The stories that much of this coal is intended for use of the British Navy has been authoritatively denied. The railroads are simply getting prepared for any possible shortage this fall.

Offerings at low prices are somewhat less common than they were a short time ago. The market could easily become congested at present, if consignment shipments were sent in to any extent. Prices are on the basis of $2.80 for Pittsburgh lump, $2.70 for three-quarter, $2.55 for mine-run and $2.15 for slack. There is not much call for slack just now. Allegheny Valley coal is selling at about 25c. below the Pittsburgh.

Anthracite—Early buying has been the feature of the anthracite market this season. A large part of the business that would ordinarily not be placed until weeks later has already been covered, so that September will find a great many retailers carrying heavy supplies. This is true especially of Canada, where there has been alarm over the supply on account of the war abroad. There will undoubtedly be a reaction sooner or later to make up for the almost unprecedented amount of early ordering this month, but August trade will be considerably above the average.

The Lake shipment of anthracite is slightly less than early in the summer. But the docks at the Upper Lake ports are said to be well supplied and there is not much prospect of any shortage this winter. The start of the grain movement this fall will bring a good many boats here looking for return cargoes, and a larger amount of coal will be shipped. The shipments of the past week amounted to 97,500 tons.

TOLEDO

Lake shipping greatly improved. Domestic grades gaining strength. Slack touches the lowest point in years. Railroads buying from hand-to-mouth.

There is a noticeable improvement in the demand for domestic coal, and prices are improving; in fact, it is predicted that there will be a substantial advance in prices by Sept. 1. On the other hand, nut, pea and slack are extremely hard to move and have reached the lowest ebb known in years. The Lake movement is heavier than it has been for months past, and boats are being loaded and cleared with great rapidity. Considerable coal is being shipped to Canada. Shippers and buyers are anticipating complications in connection with the war, and are moving the coal while they can.

The situation at the mines remains practically unchanged. The Pittsburgh No. 8 field is no nearer a settlement. Merchants in the towns affected by the strike declare that business is absolutely paralyzed and demand that the miners take some action looking toward a settlement. Railroads are buying little, as they are hoping for a settlement of the Pittsburgh No. 8 difficulties and are holding off their yearly contracts in the hope of securing this coal. The railroad men generally consider the Pittsburgh No. 8 coal as best fitted for their purposes.

COLUMBUS

Production gradually increasing and prices are holding at fair figures. Indications of an advance in the circular after Sept. 1. Eastern Ohio is still idle. Lake movement quite large.

Activity prevails in both the domestic and Lake trade. The steam trade is still slow, but that is to be anticipated when business conditions are taken into consideration. On the whole, the tone of the market is fair and the prospects for the future are not bad.

The Domestic Trade is probably the strongest point in the market. Dealers are placing orders for immediate delivery, as the stocking season is at hand. They are in the market for domestic lump from Ohio districts as well as Pocahontas and West Virginia splints.

The Lake Trade is active and a large tonnage is being shipped to the Northwest. During the week ending Aug. 21, the Hocking Valley docks at Toledo handled 108,000 tons, as compared with 100,000 tons the previous week. A total of 1,500,000 tons has been handled by the docks since the opening of navigation. The demand for fuel from the Northwest is strong, and docks are generally in good shape.

Production in the various Ohio districts is gradually increasing, and many mines are up to the limit. Others are being placed in shape for operation, and tipples are being rebuilt as fast as possible. Eastern Ohio is still idle because of the failure to settle the wage scale.

Prices in the Ohio fields are:

	Hocking Valley	Pittsburgh	Pomeroy	Kanawha
Rescreened lump	$1.60	....	$1.75	$1.50
1¼ in.	1.50	....	1.60	1.50
¾ in.	1.30	$1.20	1.40	1.30
Nut	1.15	....	1.50	1.15
Mine-run	1.10	1.05	1.15	1.10
Nut, pea and slack	0.45	....	0.50	0.45
Coarse slack	0.35	0.35	0.40	0.35

CLEVELAND

Spot coal about equals the demand, and consignments are hardly a factor. Business is on the basis of 60 per cent. of normal. Lake shipments light, but reports indicate the movement from upper Lake docks is steadily increasing.

Prices are holding steady on all grades and the supply is as large as necessary. The market for slack shows a little more strength, which is due probably to the erratic buying that characterizes this grade. Though prices have not changed materially, the demand is stronger just now. Operators have found the Cleveland market too uncertain to warrant consignment coal, and, with one or two unimportant exceptions, have ceased to ship on speculation. The only increased demand is from Canada.

Youghiogheny and Pan Handle coals are the principal offerings, especially on slack. The Fairmount operators are sending in some coarse coal. Goshen and Cambridge are shipping a little of this grade, but only a few mines are working, because the clean-up work has not been finished.

No. 8 Operators have arranged to meet the miners in joint conference Thursday afternoon at Wheeling, W. Va. This is neutral ground, and it is thought the old arguments can be avoided and a new viewpoint brought out. This is the only hope operators have of a settlement.

Lake Shippers are having trouble getting boats of the 3000-ton class to go to Lake Superior. There is no demand for these boats in traffic that furnishes down cargoes and the owners are keeping them in the Lake Michigan trade. The shippers have so little dock space they require small boats. Shipments from Duluth-Superior docks are on the basis of 20,000 tons a day, as compared with 30,000 tons a day last year. The grain movement is light at Duluth-Superior and the railroads are taking very little coal for that reason. The country trade is said to be without much coal on hand.

Quotations are as follows:

	Pocahontas	Youghiogheny	Fairmount	No. 8 W.Va.	Massillon
Lump	$3.60				$3.20
Lump, 1½ in.		$2.25	$2.05	$2.10	
Lump, ¾ in.		2.25	2.05	2.10	
Egg	3.60				
Mine-run	2.60	2.10@2.15	2.00	2.00	
Nut		2.20			3.20
Slack	2.35	1.60@1.65	1.70	1.55@1.60	

CINCINNATI

Steam market severely restricted by decreased industrial activity on account of the war. Domestic movement is still slow, but increases are predicted soon. Heavy rush expected in the fall.

Cancellations of European orders for machinery and other products manufactured locally have made the resumption of normal activity among industrial plants seem only a remote possibility. But, on the other hand, the energy being displayed in securing a stronger footing in South American and Asiatic markets gives promise of ultimate success. Just now, however, prospects are not good for the hoped-for strengthening of the screenings market, which has for some time hampered the movement of domestic coals.

While the local domestic market continues dull, there is every indication of an early change in this situation. The usual summer storing movement has already been delayed considerably, and when it does begin it will mean an unusually heavy volume of business in a short period. It is also the unanimous opinion of operators interested in the Virginia, West Virginia and eastern Kentucky fields that those sections will be called upon very shortly for large quantities of coal for export, and this can hardly help stimulating the market very materially.

DETROIT

Some activity in Hocking coals, which are popular in this district. Steam coals slower.

With the opening of the Hocking mines in Ohio, there has been considerable negotiation on these fuels, which are among the most popular in the local market. Hocking lump is now quoted at $1.60, f.o.b. mines, which is about the same as last year. Steam business is not so active, manufacturers withholding orders until the outlook is better defined. Prices continue low on the steam grades, slack being quoted over a wide range from 50 to 75c., with most of the business being negotiated more nearly at the lower figure.

SOUTHERN

BIRMINGHAM

Outlook favorable though adverse conditions prevail in the cotton business. Large sales of pig iron.

There has been very little change in either the lump or steam coal market this past week. While the demand is still far below the possible production, some orders are coming in, and quotations seem to have steadied up to the circular prices.

While the prospects for an increased activity are evident, still, there is some uneasiness that the usual oil mill trade will be greatly curtailed, due to the fact that the farmers are inclined to hold their cotton, without even ginning it, which would naturally shorten the oil mill season. Blacksmith coal seems to be in a satisfactory condition, both as to tonnage being moved and prices, which remain firm at $2 to $2.25 f.o.b. mines for the best grades. Furnaces report heavy sales of pig iron, the average price being about $10.25 f.o.b. Birmingham. Some furnaces are obtaining a price slightly in advance of this.

LOUISVILLE

Crop and business uncertainties making the market irregular. War adversely affecting the situation. Prices lack steadiness.

Market conditions in Kentucky are "spotty." Some companies are doing very well, while others are reporting slow sales and cut prices. The Southern market is in bad shape, due to suspensions and curtailment of operations on account of uncertainty as to how the cotton crop will be handled.

The interior market is not looking as well as was expected; crops have not been as large as anticipated, while in certain sections adverse tobacco prospects are affecting buying power and credits. However, the mines are running nearly full again, but it is generally admitted that the momentum gained before the war unsettled conditions has been lost, and that there is considerable handicap to overcome.

Nut and slack and most steam coals are weak in this section, the former being especially long on the Louisville market. For the first time, too, West Virginia coals from mines located on the Cheapeake & Ohio R.R. are being quoted in this market. Eastern Kentucky block coals are quoted at from $1.65@1.90, egg at from $1.15@1.40, while steam run-of-mine ranges from $1@1.05 and is hard to move. Nut and slack vary from 60@70 to 40@50c., with the lowest grades hard to move at any price.

COKE

CONNELLSVILLE

Market stagnant, present consumers being covered by contracts and no additional consumption in immediate prospect. Prices not quotably changed and production and shipments decreased a trifle.

The Connellsville coke market continues absolutely stagnant. There has been no increase in consumption by interests which do not make their coke, and the present consumers are fully covered. Production is regulated quite closely to requirements and no coke is being dumped on the market. There may be a little buying for September by furnaces which bought only for July and August, but as a rule present contracts are for third quarter or the entire half-year. The market is quotable as follows: Prompt furnace, $1.75; contract furnace, $1.75@1.90; prompt foundry, $2.25@2.35; contract foundry, $2.35@2.50, per ton at ovens.

The "Courier" reports production in the Connellsville and lower Connellsville region in the week ended Aug. 15 at 257,340 tons, a decrease of 6730 tons, and shipments at 260,490 tons, a decrease of 9478 tons.

BUFFALO

Little is being done in coke in this market, and most handlers say that their sales are only a small part of what they usually are at this time. The quotations show no change, being down to a basis where lower prices seem rather unlikely. They are on the basis of $4.25 for best 72-hr. Connellsville foundry and $3.25 for stock coke.

BIRMINGHAM

The market on both furnace and foundry coke remains unchanged from last week. There is no demand, and prices are low.

CHICAGO

A greater demand for byproduct coke in the domestic trade has been reported. This has been strong enough to confirm the new circular price of $4.85 f.o.b. Chicago. Quotations now are: Connellsville, $4.90; Wise County, $4.75; byproduct, egg, stove and nut, $4.85; gas house, $4.25.

MIDDLE WESTERN

INDIANAPOLIS

Domestic grades moving better and mines are on half-time. Operators anticipating good September movement. Falling off in requirements of railroads or factories not yet felt in coal trade.

The coal trade of Indiana preserves its usual August tenor, showing a slight improvement in the movement of domestic grades over July. There is the usual routine demand from railroads, no better buying by factories, plenty of cars available, mines operating about three days a week and a respectable demand at retail for the winter's supply. Both wholesalers and retailers expect September to bring improvement. The two unusual price advances this summer have done much to hurry up purchases.

Some mines are averaging four days a week, mostly those working the fourth vein. There seems to be a sentiment that the industrial situation is not as good as it has been, due to the war shutting off exports of factories, but if this is so, it has not yet made itself felt in the local coal trade. Coal men say a falling off in demand from factories will mean a reduction of the requirements from railroads. Operators report that the war has done nothing yet for the Indiana trade. Prices are somewhat easier, due to the keen competition. Offerings of mine-run are reported as low as $1, with screenings down to 70c.

CHICAGO

Larger sales are being made in almost every grade of coal. Supply of Hocking coal unequal to demand. Price of Springfield lump advanced 10c. a ton.

Increased activity in almost every grade of coal has been noted in Chicago during the past week. The betterment is attributed to the fact that manufacturers are concentrating their attention on home business. Market observers point out that our internal business is bound to be good regardless of the interruption to export trade due to the European war.

The lowest price quoted for Pocahontas and New River coal, even on off-grades, is $1.25, and a number of the larger producers find it easy to obtain $1.40. The chief reason for

this is the buying of supplies for apartment houses. Demands for Hocking coal are in excess of the supply. An improvement has also been noted in the splint-coal situation. It is reported that operators in the Kanawha district have sold a large amount of this coal for export. Dealers report an unusually good demand for Carterville lump and egg, and No. 1 washed. The demand for Springfield lump coal is increasing and operators have advanced the price to $1.35, making a rise of 10c. a ton. The sales of Indiana coals has been substantially increased.

Prevailing prices in Chicago are:

	Springfield	Franklin Co.	Clinton	W. Va.
Domestic lump	$2.07	$2.45@2.65	$2.17@2.27	
Steam lump	1.87@1.92		1.97	
Egg		2.45@2.65		$4.05
Mine run	1.87	2.15@2.25	1.87	3.30@3.45
Screenings	1.47@1.52	1.65@1.70	1.47@1.52	

Quotations for Harrisburg coal are: Domestic lump and egg, $2.40@2.55; steam lump, $2.25; mine-run, $2.15@2.25; screenings, $1.65@1.70; No. 1 nut, $2.25; No. 2 nut, $2.40.

Carterville prices are: Lump and egg, $2.40@2.55; No. 1 washed, $2.55@2.70; No. 2 washed, $2.35@2.40.

ST. LOUIS

General trade better, although the Standard market is completely demoralized.

The market still continues to improve on high-grade coals for the domestic sizes, while prices are gradually dropping on the steam grades. The Standard market, however, has not improved at all, and, if anything, it is getting worse. Standard 2-in. lump has sold as low as 85 and 90c., while screenings are going at from 40 to 50c. In the middle of summer, the lump sold for 75 to 80c., and screenings from 70 to 80c. This averaged 75c. mine-run, but it is an easy matter to figure out what the result is when 70% of the output is sold as lump at 85c. and 30% as screenings at 40c.

In the Mt. Olive, Staunton and Sparta Fields, fairly good prices are being maintained, and a tonnage satisfactory to the operators.

The past week saw the clearing away of all the cheap Carterville and Franklin County lump coal, and the cheapest Carterville lump now on the market is quoted at from $1.35 to $1.40 and $1.45. The higher grade coals from the Franklin and Williamson County fields are going at from $1.50 to $1.75, and the demand exceeds the supply.

The Washed Coal Market is improving as far as Nos. 1 and 2 are concerned, but the other sizes are still weak. Anthracite from the Pennsylvania field still continues to move in, in fairly good tonnage, and there seems to be an increased call for Arkansas this year to take the place of unsatisfactory West Virginia smokeless.

In a general way, the future of the local market is exceedingly good, as far as the high-grade operators are concerned, but little encouragement is offered to operators in the Standard field in the way of either business or profits.

	Williamson and Franklin Co.	Big Muddy	Mt. Olive	Standard	Sparta
2-in. lump	.....	....	.....	$0.85@0.95	$1.10
3-in. lump	.....	....	$1.30	.....	.....
6-in. lump	$1.60@1.75	....	1.40	1.00@1.15	1.25
Lump and egg	1.85@2.15	$2.25	.....	....	1.15
No. 1 nut	1.20@1.40	....	.....	.....	.....
Screenings	0.70@0.75	....	0.80@0.85	0.40@0.50	0.45@0.55
Mine-run	1.00@1.15	....	.....	0.75@0.80	.....
No. 1 washed nut	1.40@1.50	2.25	1.50	....	.....
No. 2 washed nut	1.25@1.35	....	1.35	....	.....
No. 3 washed nut	1.15@1.20	....	.....	....	.....
No. 4 washed nut	1.10@1.15	....	.....	....	.....
No. 5 washed nut	0.65@0.70	....	.....	....	.....

KANSAS CITY

Trade shows improvement with a distinct indication of the fall opening. Prices are steady.

There is a marked inclination to hold off on winter coal purchases, in anticipation of a repetition of last year's conditions when warm weather in November caused a decline. Farm demand is lighter, because of temporary check to threshing, many preferring to postpone this rather than pile wheat on the ground, since bins and all available storage is filled because of congested movement. Prospect of lower prices, due to war, is a factor in the situation.

The more favorable situation of the Kansas Natural Gas Co., that will enable it to supply abundant gas, has not influenced many householders yet. Local trade was slow early in August, but has improved greatly, and the fall movement seems well begun. Slack coal is growing scarce because of the strike.

The market is quotable about as follows:

	Mines	Delivered
Cherokee lump	$2.00	$2.80
Cherokee nut	2.00	2.70
Mill coal	1.60	2.30
Slack	1.50	2.20

PORTLAND, ORE.

Prediction that prices will advance Sept. 1 as result of reduced importations and increased demand. Retail business active.

Coal dealers here have been busy the past few days booking orders. It is predicted that prices will advance 50c. per ton Sept. 1 on Wyoming and Utah coals, and this will probably mean a similar advance all along the line. Because of the slow movement during the summer months, dealers have not been storing up heavily, and as the mines advanced quotations Aug. 1, the wholesalers here contend that they will be compelled to follow suit.

Coal from the Centralia district is now being laid down here at a cost that permits its being retailed at $6 per ton

From the Coos Bay country comes the report that efforts will be made to ship coal here in larger quantities than in years past. The railroad into Coos Bay is not yet connected up but will probably be completed during the winter. In the meantime coal will be shipped here by boat, the service having been increased considerable since last winter. At that time the Coos Bay coal sold at $8 per ton, delivered in ton lots.

PRODUCTION AND TRANSPORTATION STATISTICS

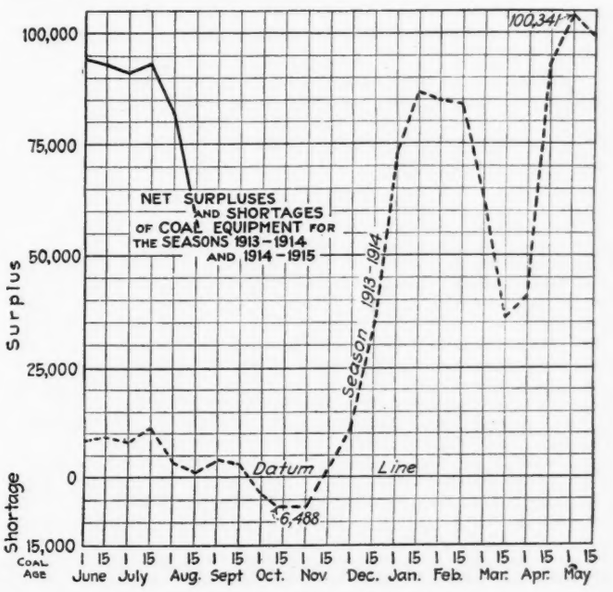
THE CAR SITUATION

American Ry. Association reports surpluses and shortages of coal equipment for two weeks ended Aug. 15, as follows:

	Surplus	Shortage	Net*
New England Lines	985	0	**985**
N. Y.; New Jersey, Del.; Maryland; Eastern Penn.	15,866	0	**15,866**
Ohio; Indiana; Michigan; Western Pennsylvania	24,963	0	**24,963**
West Virginia, Virginia, North & South Carolina	2,552	0	**2,552**
Kentucky, Tenn.; Miss.; Alabama, Georgia, Florida	2,954	0	**2,954**
Iowa, Illinois, Wis., Minn.; North & South Dakota	3,153	18	**3,135**
Montana, Wyoming, Nebraska	656	0	**656**
Kansas, Colorado, Missouri, Arkansas, Oklahoma	1,861	472	**1,389**
Texas, Louisiana, New Mexico	266	4	**262**
Oregon, Idaho, California, Arizona	3,304	2	**3,302**
Canadian Lines	0	0	**0**
Total	56,560	496	**56,064**

	Apr. 15	May 1	May 15	June 1	June 15	July 1	July 15	Aug. 1
Surplus	92,139	100,370	99,664	94,770	93,520	91,280	93,509	82,284
Shortage	24	29	313	7	49	430	292	110
Net*	**40,440**	**92,115**	**100,341**	**99,351**	**94,763**	**90,850**	**93,217**	**82,174**

***Bold face** type indicates a surplus.



PENNSYLVANIA RAILROAD

The following is a statement of shipments over the P. R.R. Co.'s lines east of Pittsburgh and Erie for July and seven months of 1913 and 1914, in short tons:

	July		Seven Months	
	1914	1913	1914	1913
Anthracite	693,545	719,944	6,347,822	6,138,175
Bituminous	3,966,357	4,551,528	27,521,539	28,833,947
Coke	847,135	1,183,070	6,075,020	8,569,978
Total	5,507,037	6,454,542	39,944,381	43,542,100

IMPORTS AND EXPORTS

The following is a comparative statement of imports and exports in the United States for June, 1913-14, and for the twelve months ending June, 1912-13-14, in long tons:

	12 Months			June	
Imports from:	1912	1913	1914	1913	1914
United Kingdom	6,846	9,398	11,025	648	341
Canada	1,082,522	1,336,387	1,005,693	80,533	67,511
Japan	13,168	79,072	85,689	260	1,838
Austria and Tasmania	195,713	150,150	251,977	9,325	21,896
Other countries	1,993	3,257	3,618		5
Total	1,300,242	1,578,264	1,358,002	90,766	91,591
Exports:					
Anthracite					
Canada	2,922,531	4,545,976	3,897,365	414,901	427,710
Uruguay			84		
Other countries	56,571	79,505	61,665	5,764	5,546
Total	2,979,102	4,625,481	3,959,114	420,665	433,265
Bituminous,					
Canada	10,671,982	11,981,443	11,472,397	1,418,113	793,856
Panama	511,802	483,974	362,427	40,725	25,810
Mexico	344,712	443,884	296,392	37,635	15,866
Cuba	1,121,580	1,273,945	1,129,954	106,264	81,575
West Indies	692,534	601,431	577,541	51,376	45,433
Argentina			139,409		9,977
Brazil			239,082		10,023
Uruguay			62,452		6,200
Other countries	1,367,237	1,298,424	1,425,312	237,458	196,826
Total	14,709,847	16,083,101	15,704,966	1,891,571	1,185,566
Bunker coal	7,092,255	7,350,404	7,811,913	683,910	687,386

FOREIGN MARKETS

GERMANY

Production, imports, exports and consumption of the German Empire during the first six months of this year and last year were as follows, in thousands of tons:

	Coal	Lignite	Coke	Briquettes
Production—				
1913	93,778	15,944	41,900	13,183
1914	94,148	15,974	44,351	14,515
Imports—				
1913	5,028	253	3,503	72
1914	4,776	295	3,184	79
Exports—				
1913	16,372	3,431	30	1,638
1914	13,170	2,630	31	1,622
Consumption—				
1913	82,234	12,786	45,373	11,617
1914	80,754	13,639	47,504	12,972

The Rhenish-Westphalian Coal Syndicate has reported fuel exports for the past six years as follows:

Year	Coal	Coke	Briquettes	Total
1908	9,018,220	2,745,801	726,372	13,206,744
1909	10,766,034	2,909,084	802,626	15,234,046
1910	11,925,573	3,493,472	1,210,013	17,517,673
1911	13,087,977	3,677,478	1,578,519	19,254,930
1912	14,004,439	4,519,631	1,685,763	21,349 738
1913	15,602,770	4,401,433	1,642,792	22,757 003

GREAT BRITAIN

The London coal trade has been very erratic during the past week. In some cases prices have been reduced and in others slightly advanced. The difficulty in obtaining fuel has been relaxed somewhat, but there is still the grave danger as to what it may mean in the near future. With the return to work after the holidays, serious problems have made themselves felt in a variety of ways. So many horses and vans have been commandeered by the Government that it is becoming a very serious matter as to how the coal on order can be delivered. This difficulty seems likely to extend to the colliery end also, for it is currently reported that many of the Midland collieries have had to bring up the pit ponies in order that the Government may examine and report on the number available in an emergency. At the same time the calling up of the Territorials and Reservists has thinned the ranks of the regular workers very considerably, both in the offices and at the depots.

A considerable quantity of South Yorkshire and other qualities of steam coal and house coal usually sent to the coast for shipment have found their way to the London markets, and kept the supply well up to the demand. There is no denying the fact that the general public during the first few days of the outbreak of the war completely lost their heads and rushed in orders far beyond their actual requirements. Business has been very irregular in London during the whole of the week, and there are still many collieries who are declining to enter any orders whatever, except for contract coals. All colliery quotations are still withdrawn, so that buying is limited to very small proportions until the position of affairs is better known.

One of the first features of the effects of the war is the shortage of pit props and oil, and it is feared by some that this will considerably lessen the output unless the local supplies can be made serviceable. In the seaborne market no Durham or Yorkshire qualities are offering. Vessels are, however, still running along the coast, and on Monday, 15 contract boats were reported as entering the Thames, and on Wednesday 9, all sold. Manufacturing fuels, whether of the large coal or the nutty slack varieties, were in good demand, and fetched good prices. The lowest summer prices are still the prices in operation for the public delivery. In some cases, however, the advertisements have been withdrawn, as so many orders have been received over and above the normal requirements.—"The Colliery Guardian."

BRITISH EXPORTS

British exports for July of the past three years were as follows:

To	1912	1913	1914
Russia	648,018	880,066	870,385
Sweden	472,276	402,713	423,349
Norway	224,229	180,898	172,368
Denmark	287,886	227,245	228,900
Germany	1,000,068	867,036	922,088
Netherlands	209,714	194,047	143,249
Belgium	179,548	162,492	127,892
France	1,047 511	1,161,473	1,090,169
Portugal, Azores and Madeira	124,539	114,952	107,931
Spain and Canaries	337,096	304,505	301,918
Italy	967,491	965,225	881,721
Austria-Hungary	87,677	103 976	84,596
Greece	60,821	72,022	66 999
Roumania	39,931	25,987	47,061
Turkey	55,766	36,869	66,674
Egypt (including Anglo-Egyptian Sudan)	348,765	290 891	262,224
Algeria	99,233	97,581	101,719
Portuguese West Africa	48,332	18,937	2,456
Chile	52,131	44,626	32,426
Brazil	110,667	153,575	130,979
Uruguay	64,590	70,815	31,945
Argentine Republic	322,833	360,119	285,422
Channel Islands	22,414	20,729	19 101
Gibraltar	26,843	22,923	28,586
Malta	39,721	54,319	35,317
Aden and dependencies	12,169	14,229	11,156
British India	10,251	1,379	5,591
Ceylon	31,759	14,032	27.141
Other countries	109,587	111,550	90,118
Coke	85,978	99 605	107 954
Briquettes	191,945	200,814	210,418
Total	7,319,789	7,275,630	6,917.853

FRANCE

So far the war is having no direct effect upon French coal markets, except that, of course, the demand has fallen off greatly, owing to the shutting down of the big iron works of the North and East, as well as many factories throughout the country. At the same time, however, the authorities have extended the mobilization orders for miners to 45 days, so that the personnel of the collieries has not been diminished to any great extent. This assures the supply of the national requirements, more particularly the railways, the armament constructors, and the shipbuilding yards, all of which are working at high pressure. There are also quite a few demands for a new business to take the place of the German and Belgian imports now stopped, but the prices are being kept at their previous level. Transport at present is a problem, for the railway facilities are enormously reduced, and even water carriage is interfered with through lack of men to man not only the barges, but the discharging plant. However, the Northern collieries are loading up as many as they can obtain, and despatching them to Paris and the South. The question of pit props is being settled by the same means; many of the big barges which come to Paris with wine are now going through laden with timber. Towage is a further problem, and is handicapping this traffic, for the big barges can only move with tug boats, although the smaller coal barges from the North can move with horse towage.

The household trade in Paris is pretty much at a standstill through lack of local delivery wagons; consequently, middlemen are enabled to ask very much enhanced prices, not justified by the colliery prices, but simply on account of their own personal difficulties. At the moment all price lists are cancelled, and prices may be anything. American exporters are making a bid for Government business here just now, but so far without much success.

The Americans will hardly do much business yet, because in the first place they do not seem prepared to quote on a c.i.f. basis, and local dealers have no means at present of chartering. Today there was a quotation from America for New River at $3 a ton, f.o.b. Newport, which would work out at a price quite unacceptable under present conditions here. —"The Colliery Guardian."